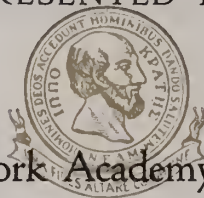


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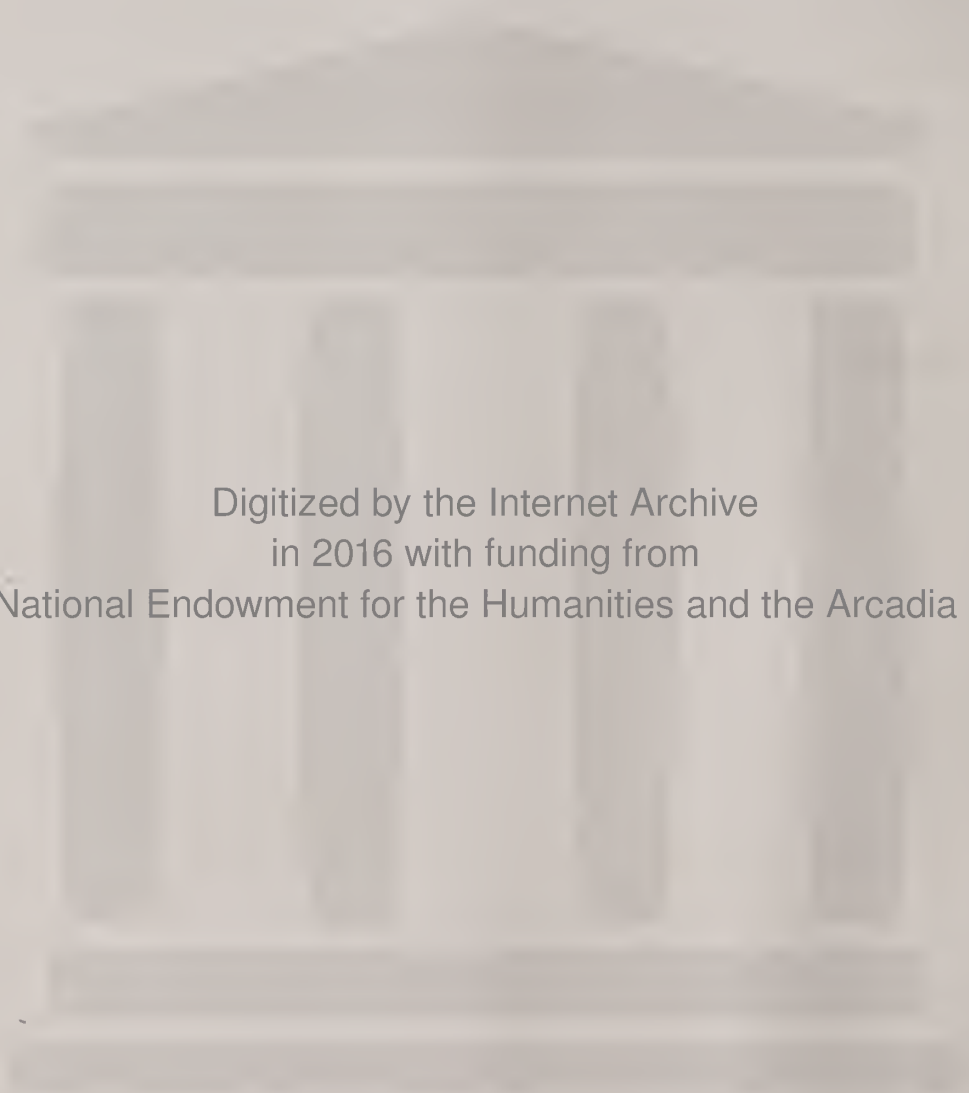
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Rhode Island Medical Society



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ORIGINAL ARTICLES

THE HEART AND ITS MANAGEMENT IN HYPERTENSIVE DISEASE.*

JAMES P. O'HARE, M.D.,

BOSTON, MASS.

To understand and treat intelligently the heart in a hypertensive patient requires a widespread knowledge of vascular disease in general and of the possible parts played by the heart in such disease. With this as a background the physician should be able to find and interpret the various abnormalities in the heart of the particular patient and apply the proper remedies. When it is realized that a large proportion of all cardiac patients beyond forty years of age have, or have had high blood pressure, one can see how vast and important this subject is. It will be obvious, too, that I can only touch the high spots in the short time at my disposal.

Let me tell you something about hypertensive disease in general as I see it. We can then discuss the part played by the heart in this disorder, the possible symptoms and signs referable to this organ and the therapeutic measures of value in some of the abnormalities.

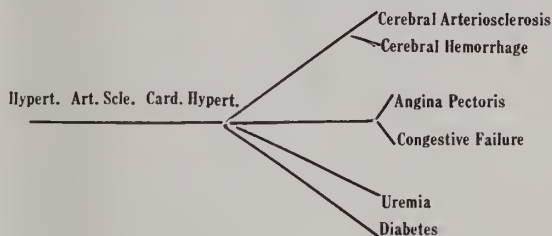
My conception of hypertensive disease is that it is a generalized circulatory disorder made up of three elements:

- (1) increased blood pressure;
- (2) a generalized sclerosis of the small arteries, perhaps varying in degree in different parts of the body; and
- (3) the resultant secondary changes in various organs.

With such a conception clearly in mind we can construct a very practical scheme such as the following, which shows the development and possible relations of the hypertensive disease.

*From the Medical Clinic of the Peter Bent Brigham Hospital.

*Read at the annual meeting of the Rhode Island Medical Society, June 4, 1925.



In this scheme I have assumed the correctness of the prevalent theory that high pressure comes first and arteriosclerosis later. Cardiac hypertrophy is an early development and an almost constant finding in any case with a permanently increased pressure. Subsequently, the vascular disease may progress into any organ or group of organs, and by cutting down the blood supply cause dysfunction of such organs. Those which are most familiar, perhaps because the results are most evident, are the brain, the kidneys and the heart. Other organs, of course, may be equally affected. The process may develop along the cerebral channels and result in apoplexy, or give the symptoms indicating cerebral arterio-sclerosis. The kidneys may be affected seriously and uremia occur. The pancreas may be the seat of extensive vascular change and diabetes develop. The heart may be affected by the disorder and the patient may die of congestive failure or angina pectoris.

It should be remembered that the disorder is rarely confined to any one route, and all sorts of combinations occur. If this is borne in mind, there will be no great difficulty in explaining the curious combinations of albuminuria, glycosuria, cerebral and cardiac symptoms that occasionally occur.

From such a scheme, it is easy to see that the heart is only one element in the whole vascular disease. It may be the weakest link in the whole chain, or it may concern us not at all.

Let us now see just what cardiac symptoms and signs the patient may disclose. Of the symptoms, palpitation and dyspnea are the most common. The former is usually due to the pounding of a

vigorous heart. Occasionally, the sensation may be due to extrasystoles. Dyspnea is very common, and varies from slight shortness of breath on considerable exertion to marked breathlessness when reasonably quiet. Cheyne Stokes breathing is, of course, a very late finding. Nocturnal smothering occurs in over 10% of our cases. It usually indicates a serious situation. Acute pulmonary edema is, fortunately, a rare occurrence.

Edema of the legs comes fairly late in the disease but is fairly frequent in the advanced cases. Another complaint in such patients is substernal compression. This is closely related to angina pectoris, which is, strange to say, not a very common finding in any unselected group of cases. However, dull pain at the apex, often accompanied by tenderness, is a fairly frequent finding.

Of the objective findings, hypertrophy of the heart is the most common. By the usual methods of physical examination it can be found in 80 per cent of all cases. The so-called 7 foot x-ray plates demonstrate enlargement in almost every case with permanently increased pressure.

The rhythm of the heart is usually normal. Extrasystoles are the most frequent abnormalities found. They may occur fairly early in the disease. Auricular fibrillation occurred in over 10 per cent of our series. Paroxysmal tachycardia is rare. Galop rhythm is of frequent occurrence late in the disease. Heart block and defective conduction time are relatively infrequent. The electrocardiogram, at the present time, helps but little except in such block cases. Occasionally one does see an ominous inverted T-wave in Leads I & II.

Accentuation of the first sound at the apex and the second sound at the base is, of course, the rule. When the heart begins to weaken, however, the first sound becomes softer, and the second sound may also decrease in intensity. Systolic murmurs at the apex and at the base are common and without much significance. A coarse systolic in the aortic area suggests aortitis. Occasionally, a transient diastolic whiff along the left side of the sternum is made out.

Now what of the care of the heart? In general, the treatment of the heart is the treatment of the whole vascular disorder. There should be

a definite cutting down of physical and mental effort and all exciting influences removed as far as possible. These all act to increase the pressure and thereby put greater strain on the heart. A high diastolic pressure indicates a constant and serious overload. Plenty of sleep at night and rest after meals are essential. Exercise in the form of walking is necessary to keep the heart and skeletal muscles in optimum tone. When the condition is good, a moderate amount of golf or similar sport may be allowed, but all violent exercise or sudden strain should be forbidden. In those whose general condition prevents walking, massage is beneficial.

When attention must be given to the heart, the treatment is exactly the same as that of cardiac disease in other conditions. Extrasystoles can usually be ignored. When bothersome bromides may help. Occasionally the stopping of digitalis causes a reduction in their number. Auricular fibrillation should be treated, when necessary, by rest and digitalis. Paroxysmal tachycardia will sometimes respond to vagal or ocular pressure when the more usual methods fail. Heart block in itself usually needs no treatment. If Stokes Adams syndrome threatens, atropine, barium chloride, adrenalin or thyroid may help. Galop rhythm usually responds to rest in bed, digitalis and sedatives.

In angina pectoris, substernal compression and nocturnal smothering, nitroglycerine and amyl nitrate are very effective for the immediate attack. Digitalis and perhaps diuretin are useful for prolonged action. Morphine is rarely ever necessary, but the other nerve sedatives, especially the bromides, are very useful.

Congestive failure should be treated in the usual way with morphine, rest in bed and digitalis. I wish to state emphatically that hypertension in no way contraindicates the use of digitalis. Bleeding should be more frequently used, not merely to relieve the embarrassment of the right side of the heart, but for its general vascular effect.

Acute pulmonary edema should be treated with morphine and atropine and intravenous strophanthin if no digitalis has been previously given. Where this drug cannot be used, caffeine or digitalis intravenously or intramuscularly may be tried. Bleeding may be of great value. Adrenalin is usually recommended, but while it may be very effective

tive, there is considerable risk. It sometimes causes a sharp rise in pressure, amounting occasionally to 100 mm. Such a rise might well produce angina pectoris or a cerebral hemorrhage.

In conclusion I wish to reiterate that the heart in hypertensive disease is only one element in the general vascular disorder. To treat it intelligently one must understand the interactions of the various elements in this general disorder, as well as the direct therapy of the cardiac disability.

HELIO THERAPY.

BY L. L. ALBERT, M.D.

CENTRAL FALLS, R. I.

Heliotherapy fulfills the highest demands of orthopedics and conservative surgery by those who are fully conversant with all phases of this latest branch of medical treatment. The ordinary physician has only a slight conception of the multitudinous advantages that accrue from this new form of therapy. Mutilations that are the natural result of surgery are often avoided. The body recovers its normal outlines, and the patient returns to the world a complete individual, without loss of any of his organs. Sunlight is useful not only in the cure, but also in the prevention of all forms of tuberculosis. The desire for the healing rays of the sun is instinctive, for even a child before the age of reason turns its head towards the light and abhors the darkness. In all ages, there have been sun worshippers. These lovers of that great planet that sends forth heat upon the world, send forth their prayers to the sun, not through fear, but through love, for it was and is the sun that brought and brings joy and happiness into the lives of mankind.

For the treatment is not exposure merely to the sun. The technique of that treatment requires skill, care and gradual application. It demands a close study of the idiosyncrasies of each individual who is to be subjected to the curative rays of the sun. You will see aligned with heliotherapy, aerotherapy. One requires the assistance of the other. The fact that today insolation alone is of great benefit in many debilitating diseases during convalescence and during the period when the doctor desires to build up the body resistance of the patient is made apparent by the use of artifi-

cial solar apparatus. But the use of the best of such apparatus is a poor substitute for Old Sol himself. In ancient times, the Incas treated syphilis by heliotherapy. The old Germanic tribes were accustomed to expose children stricken with fever on the roof of their houses, for they felt that the sun would dissipate the raging fever. These were the first solaria recorded in medical history. As early as 1774, ulcers were treated by solar heat. In 1859, Charcot demonstrated that the effect of certain light rays on the skin was independent of any heating action. Blunt in 1877 made manifest the bactericidal properties of light, while in 1893 Finsen experimented with photo and heliotherapy. The roentgen rays soon were studied for their effects when used for therapeutic purposes. And it was discovered that their selective action on certain types of cells was of the greatest moment to students of medicine.

The trophic action of sunlight is seen chiefly in the skin and muscles. First comes a hyperemia and increased activity of the sebaceous and sweat glands, which tend to prevent over-heating. The sweat is only visible when the relative humidity is high. Following this, the skin acquires a first degree burn in which the heat of the sun has been negligible, for it is not the heat of the sun that burns, but the actinic rays that emanate from the sun.

The close relationship between sunshine and happiness is obvious to everyone. With sunshine comes a desire for physical action. This promotes physical well-being.

The habit of wearing clothes results in anemia and atrophy of most of the skin, and also creates a susceptibility to heat and cold. This invites the common cold of civilization.

People often are afraid of being sunburnt. This fear has been a great deterrent in the sun treatment, but it is to be remembered that once pigmentation has taken place, there is no danger of sunburn, and by this time the vasomotor mechanism has recovered functional activity sufficient to enable the patient to be comfortable throughout wide variations of temperature. Placed in its natural surroundings, the skin remains free, and has splendid opportunity to combat successfully the invasions of micro organisms, even though these organisms have already begun their invasion.

The disappearance of cutaneous eruptions corresponds very closely to the occurrence of pigmentation. In cases of chickenpox, children are more prone to have lesions where the skin is not exposed to the sun than in those portions of the body where the sun has had free access to the skin.

I have previously mentioned the close connection between aerotherapy and heliotherapy. The importance of the effect of air upon the human system, together with the action of the sun, is shown especially in high altitudes. Where the air is relatively cool, sun treatments give the quickest response.

If, however, the air is hot, the fatigue and depression that result from heat and solar rays are far from beneficial.

Solar rays consist of x-rays, radium rays, ultra-violet rays, infra-red rays and others. It is my impression that every one of the wave lengths of the solar radiations finds in the variety of tissues of our organisms, one which will absorb it and will permit the ray to exercise its chemical action.

So far as the skin is concerned, we have no indication to the simultaneous application of sun and x-rays, provided that solar pigmentation has already taken place, and it appears that skin exposed to ultra-violet rays produced by quartz lamps is more apt to be subject to burning.

Quartz lamps represent a mercury arc in a vacuum contained in a quartz generator. They are supplied for clinical use in two distinct forms: One, air-cooled, the other water-cooled. The quartz light manufacturers often make extra va-grant claims in their literature. Although quartz lights are a good substitute when the sun is not available, or when the air is too hot or too cold to act in conjunction with the solar rays, quartz light is far from being equal to the sun itself. As I have stated before, it is my firm opinion that it is the combination of the sun and air that bring about effective results, for the air baths are almost as stimulating as the sun itself. Acne and impetigo rapidly disappear under sun treatment or under quartz light treatment, but the combination of sun and air have more than a physical reaction. They bring about a cheerful state of mind in the patient.

Physicians should encourage their patients to build solaria in their homes, where the patient can receive the full benefit of both the air and the sun instead of cooping themselves up in a sun parlor where no air can permeate. The effect of the sun rays in striking the body directly instead of through glass has been clearly demonstrated. Quartz lights are expensive. The sun is free to all.

In Miami, Florida, a solarium has been built over a bath house, and as one looks over the different individuals taking the sun cure, and sees their wonderful improvement from day to day, he cannot help but become a sun "booster."

In arthritis, surgical tuberculosis, puerperal sepsis, anemia, rickets, osteomyelitis, non-healing wounds and convalescence from all wasting and infectious diseases, the prophylactic qualities of the sun are even more marked than its therapeutic qualities.

Allow the patient to bath in air and sun, and he will respond far more quickly than to drugs or tonics alone.

ADDRESS OF DR. M. H. SCANLON, PRES- IDENT OF THE WASHINGTON DISTRICT SOCIETY.*

As President of The Washington District and the Westerly Physician's Association, also as an ordinary citizen of this beautiful southern Rhode Island town, I extend to you, Mr. President, your assisting officers and members of the Rhode Island Medical Society, a most hearty and cordial welcome. We receive you as brothers, and we sincerely trust that each one of you will enjoy his visit with us, and that you will always remember this day as a pleasurable one enjoyably spent in Westerly, Rhode Island.

Some time ago, the local committee having in charge the arrangements for the activities of today went to Providence, and in consultation (without fee) with the State Society officials, came to the conclusion that we would have no clinics—nothing on medicine or surgery—just a real restful day, a good dinner to enjoy with plenty time to eat it, thereby making it an out-of-the-ordinary day for physicians and surgeons.

*Read before the Washington District Society, September 3d, 1925.

I was informed that Dr. Rogers, a former practitioner and resident of this town, would be the chief actor in today's events. It is most regrettable that, through illness, Dr. Rogers will be unable physically to be here with us. Mentally he is with us, and you who know him better than I must fully realize the treat all present are to miss by his enforced absence. His unavoidable absence, according to the issued program, sort of makes me the Rudolph Valentino here today. As I proceed, you will note that I am conscious of my important position. I may appear very nervous. Perhaps what I read and say may neither please nor interest you, but kindly be good sports—grin and bear it. The Washington District Society has among its members some very brilliant and extremely clever men, who could more ably preside, entertain and instruct you on this occasion—much more satisfactorily than I.

Circumstances were such that last January, when I was not present, I was elected President of Washington District Medical Society. Had your visit been anticipated at that time, there would have been a contest for the office, and I assure you it would have been one of the competent, real entertainers who would be addressing you now. My work has been cut out for me—I have been fully and carefully instructed, as I told you when I arose a few moments ago, so I had better proceed and paddle along as best I can.

With the idea that some good may be done, that some excellent and fruit bearing thought may be stimulated, I am about to read to you a few lines regarding the best and most wonderful Medical Society in this or any other county. Conceit may be lurking in our minds, you may say, but we stand ready at any time to prove the above statement. I refer to the local Society, The Westerly's Physician's Association.

Some twenty-five years ago, after a seance with Dr. G. T. Swarts, representing the Rhode Island State Board of Medical Examiners, I landed in this thriving town, having been granted the privilege to practice medicine and surgery in Rhode Island. The people here and I had a sort of mutual understanding—we started on sort of even terms—I knew no one; no one knew me. Just a sweet little stranger had arrived in town to hang up a shingle. I was not as large then as I am now,

neither physically nor mentally. Other medical men arrived here about the same time, so do not think me personal. We were all received under about the same conditions, and we understood that in other towns and cities the reception to new medical men was very much the same. We were as welcome as that small animal that leaves a lasting aroma would be at a fashionable wedding. We were looked upon as intruders and undesirables—no glad hand of fraternal fellowship was extended to us; no cordial greeting; a fixed cold stare usually, and at the most a nod of the head—a slight nod—from the older medical men. Ethics was in no local man's mind, nor in his dictionary, at that time. Nothing was done for some years to overcome or change this deplorable and most regrettable condition.

The Washington District Society held its quarterly meetings. At these meetings, the local men came more closely in touch with each other. Each man's worth began to be appreciated, and the beginning of a lasting, friendly, congenial feeling seemed started. Broadened minds seemed about to realize that our actions toward each other were not what they should be.

Twenty years ago, January 5th, 1905, Dr. Champlin, Sr., presented at the Washington District meeting a paper entitled "The Business Side of the Physician." As a result of the reading of that paper and the unusual discussion that followed, the Westerly Physician's Association became a reality. To my mind, from experience under it, the most important article in its Constitution, the one we have prospered and grown strong under, reads as follows:

"The purpose of this Association shall be to bring into our organization the Physicians and Surgeons of Westerly, Rhode Island, and Pawcatuck, Connecticut, so that by frequent meetings and full and frank interchange of views they may secure such intelligent unity and harmony in every phase of their labor as will elevate and make effective the opinions of the profession in all scientific, legislative, public health, financial and social affairs, to the end that the profession may receive that respect and support within its own ranks and from the com-

munity at large to which it is entitled, and that the members may have a common scale of charging and to encourage the prompt payment of bills."

Very strong article, gentlemen, but I can assure you that it has been lived up to in every sense of the word, much to our own benefit, and the benefit of the public, in many ways. The public have known all these years that we are firmly united; they, as well as you and I, appreciate and realize what unity means. Insurance companies and fraternal orders have on numerous occasions tried to cause disruption, and sort of put dents in our organization by importing medical men into town. They failed on every occasion. We were full strength when we started, and so are we today, and it is my sincerest wish that it will ever be so.

Do not infer that the sailing has at all times been smooth. Oh, no. We have had rough waters to navigate—some times very rough; once or twice we have encountered heavy, thick, apparently impassable fog, but never once have we failed to reach shore in safety with all passengers present or accounted for.

Twenty-five years ago, the rates here were:—Office calls, 50c; house calls, 75c; confinements, \$5.00; etc.; collect when you could, which often, with many of the men, meant never. Gradually we have raised the fees, after all medical doctors agreed to the proposed changes, the fees of every doctor being the same for similar sciences. At the present time, we understand that our present charges are as high (if not higher) as in any community of our size in this country. Insurance companies—those poor charitable corporations—declare that we are the highest paid in the world, but they pay us because we are united and we feel that our charges are just. So does most every one else pay us. Every medical doctor in Westerly collects at least 98 per cent. of his charges, and collects within a reasonable time.

We are ever mindful of that tradition that medical men are now and ever have been most charitable. We make a clear distinction between a worthy poor person and a dead beat. We are charitable in all ways, but insist that cause for charity be shown.

From the time our Association started, we have attempted to look at things and to solve them in a broad-minded, intelligent way. We attempt to keep up to date along medical and surgical lines. We give the best that is in us—as we should do—at all hours, day or night. We, better than others, know the time and money we have spent, the hardships we have encountered and endured to become proficient so that we may be able in an honorable and scientific way to treat the sick and suffering.

Through the carelessness and poor business methods of doctors in the past, it becomes necessary to educate the public regarding the payment of doctors' bills. This we know can be done. We know, and you should know and be governed accordingly, that when you die, as far as medicine is concerned, you will leave no mercantile business to be added in on your estate; your business stops; you cease to be an income producer when the crape hangs on the door for you; you may have been a good and able fellow, etc. A good reputation is a wonderful thing to leave behind—try to leave it, by all means—but in addition, so conduct your business that you may leave a little of something that the Income Tax Collector will be interested in; something that will allow your dear ones to live in a way somewhat like they did when Daddy was alive. Render the best service you can, and collect for said service while you yourself are around and in a position to enjoy the fruits of your labors. We do it; so can you. Your cause is right and just; all you need is confidence.

So much for what we have done, and are now doing, in a business and financial way. Of course, I consider it of great importance, or I would not have so long dwelt upon it, but of equal, if not of more, importance are our many other accomplishments. We have created a condition that has resulted in a most friendly feeling between each and every medical doctor in this town. We have our regular monthly meetings, at which the local (and sometimes imported) men furnish papers. Fullest and frankest discussion of these papers necessarily results in all who attend and listen going away with new ideas and new thoughts.

Every medical man gets something out of every medical meeting he attends. At medical meetings, we have learned to know well the other fellow's thoughts. We note his weaknesses, if he has any, and most of us have some. We are put in a position to appreciate his ability, which should prove of mutual advantage.

We have our annual dinner—a real good feast, and usually a real good time. Each year in August we have a clam bake and outing. This is the banner day in the year for our Association. Recently we have had a little difficulty in making these two affairs as enjoyable as formerly, because of the fact that it is hard for a well man to get that little high-ball that is necessary to properly start off a good dinner. However, some of us usually have a few blanks left. May it ever be so.

Our welcome to the new men is now so very different than in former years. Every new man who comes to town, if found to be O. K., is greeted with the glad hand; welcomed as though he had the same right to be here as we ourselves, which he has. After being carefully looked up by our Society, if O. K., he is invited to join our Association, both for his own interest and ours. We attempt to show him by example the proper path to follow and tread that will lead him to success in all ways. We protect each other in all things that are right. This has been proven on numerous occasions. Ethics, as laid down by the American Medical Association, are in force in this little town, and, through the efforts of our Society, they are fully lived up to.

We feel that the spacious, beautiful, and well-equipped hospital viewed and inspected by you this morning, became a reality through our labors and efforts. The idea of a Westerly Hospital was first put forth at a meeting of Washington District Society by members or the local Association. We understand that the rules and regulations under which the medical and surgical departments of this hospital are to be managed are quite different from the rules of other institutions. They are strong and rigid rules, which give the medical man absolute control in the management of hospital

medical matters. This condition would never have been brought about without the unity of action of our Society men.

We have accomplished many other things that have resulted in good. It would only tire you should I continue to enumerate them. From hearing this paper read, and my actions, you may think that we are a conceited crowd. It is not so. The Westerly Physician's Association has done much for its members, and also much more for the people of Westerly.

This paper is longer than was originally intended. We earnestly hope that you will come soon again to spend a day with us, and we now invite you to do so. One day is too short a space of time to see all that we have to show, or to hear all that we may have to say to you. I thank you for your patience with me, and I shall close by saying: "Ever remember that you medical men, dealing with that which is most dear and sacred to all—Human Life. Keep yourself fit as possible to deal with human ills. Be abreast of the times. Give at least a dollar's worth of service, but get the dollar. You earned it—it belongs to you."

BOOK REVIEW

"OPERATIVE SURGERY,"

By Dr. J. Shelton Horsley.

Second Edition.

C. V. Mosby Co., St. Louis, Mo., Publishers.

It has been a pleasure to review Doctor J. Shelton Horsley's single volume on "Operative Surgery," and it appeals to us as a very good book for the surgeon and physician.

For the surgeon, it offers a quick and comprehensive review of most operations.

For the internist who desires to get something about operative procedure, it makes a very good reference book.

Chapters 1, 2, 3, 4 and 5 on Fundamentals may be profitably read by all of us.

THE RHODE ISLAND MEDICAL JOURNAL

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Issued Monthly under the direction of the Publication Committee

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RHODE ISLAND MEDICAL SOCIETY

Meets the first Thursday in September, December, March and June

HALSEY DEWOLF	<i>President</i>	Providence
H. G. PARTRIDGE	<i>1st Vice-President</i>	Providence
NORMAN M. MACLEOD	<i>2nd " "</i>	Newport
JAMES W. LEECH	<i>Secretary</i>	Providence
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DISTRICT SOCIETIES

KENT

Meets the second Thursday in each month

G. HOUSTON	<i>President</i>	Arctic
C. S. CHRISTIE	<i>Secretary</i>	Riverpoint

NEWPORT

Meets the third Thursday in each month

WILLIAM S. SHERMAN	<i>President</i>	Newport
ALEXANDER C. SANFORD	<i>Secretary</i>	Newport

Section on Medicine—4th Tuesday in each month, Dr. Charles A. McDonald, Chairman; Dr. C. W. Skelton, Secretary and Treasurer.

R. I. Ophthalmological and Otological Society—2d Thursday—October, December, February, April and Annual at call of President Dr. Jeffrey J. Walsh, President; Dr. Francis P. Sargent Secretary-Treasurer.

The R. I. Medico-Legal Society—Last Thursday—January, April, June and October. Frederick Rueckert, Esq., President; Dr. Jacob S. Kelley, Secretary-Treasurer.

PAWTUCKET
Meets the third Thursday in each month excepting
July and August

H. A. MANCHESTER	<i>President</i>	Saylesville
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PROVIDENCE

Meets the first Monday in each month excepting
July, August and September

ALBERT H. MILLER	<i>President</i>	Providence
P. P. CHASE	<i>Secretary</i>	Providence

WASHINGTON

Meets the second Thursday in January, April,
July and October

M. H. SCANLON	<i>President</i>	Westerly
WM. A. HILLARD	<i>Secretary</i>	Westerly

WOONSOCKET

Meets the second Thursday in each month excepting
July and August

J. V. O'CONNOR	<i>President</i>	Woonsocket
J. M. MCCARTHY	<i>Secretary</i>	Woonsocket

EDITORIALS

THE PROBLEM OF PUBLIC HEALTH.

The Rhode Island Medical Society took a forward-looking position, when at its December meeting, endorsement in principle was given to the proposal to reorganize the control of public health matters on a basis comparable to that of many other states. Essentially, the plan calls for the appointment of a single, authoritative executive officer,

known as a Commissioner of Health, in whom will be vested by legislative act, authority to enforce rules and regulations for safe-guarding the public health, which he, by and with the advice of the Health Council, may promulgate. This Council to be a body appointed by the Governor composed not alone of medical men but also of laymen whose points of view and opinions will serve to make of the Council a group of advisors thoroughly representative of the public at large. The function of the Council will be essentially legislative, while the Commissioner exercises that of executive. Such

1926

The New Year bids us solve the problems the Old Year offered. Opportunity, yet unrealized, awaits.

That we may strive, as an unit, to advance our profession and further the public welfare; accept the daily grind, with a grin, rather than a groan; think straight, play fair and ever live generously and joyously, is the hope of

Your President

Which, with Heartiest Greetings for

1926

He sends to the Fellows of the

Rhode Island Medical Society

To the Editorial Staff and contributors, To those who have recognized the advantages of an advertising opportunity and have favored us with their patronage,

Greeting.

May Prosperity continue through the coming year of 1926
and health to enjoy it attend.

FREDERICK N. BROWN, *Editor*

CREIGHTON W. SKELTON, *Business Manager*

a division of duties and privileges seems eminently wise. Some such method of public health control has worked out with very satisfactory results in New York and in Maine. Surely if success attends its operation of so great extent and diversification of rural, suburban and urban life as is represented in New York, there can be little doubt that in a community such as Rhode Island, it will also be a success.

The Commissioner must be a sanitarian or a man trained in handling the problems of health matters and when appointed must be given authority to enforce his rulings. The Council must be composed of citizens interested in the furtherance of better health laws, public spirited men who will place public weal before private gain.

We believe that the medical profession desires to enter into no partisan debate between the existing order and the proposed legislation, but is actuated by an honest belief in such a change, carrying with it full authority to enforce decisions in public health matters, offers a solution of the intolerable situation that has existed in Rhode Island through failure to grant like authority to the present system of health control.

MORE OR BETTER HOSPITALS?

The recently opened South County Hospital constitutes a valuable addition to the medical and surgical facilities of Rhode Island. A section of the state remote from the larger centers is given

the advantages accruing from a thoroughly equipped modern hospital such as is demanded by intelligent people at the present day.

A community today without easy access to a good hospital is seriously handicapped, and the spirit which made this hospital a reality is a wonderful asset. Both the state and town are to be congratulated.

As the success of the Westerly Hospital drive furnished inspiration for the Wakefield project, so the completion of the latter enterprise has set other towns to planning. Just here a word of warning may not be out of place. In some of the towns adjacent to Providence it has been suggested that it would be well to have local hospitals. It is to be feared that the proponents are moved more by local pride than by an enlightened desire for the best good of the community.

At the present time these towns depend upon the Providence hospitals. To furnish new hospitals which would approach those at present in operation would demand a sum utterly out of reach of these several communities. Even if the towns were able and willing to assume such a burden it would be a highly uneconomic procedure in a metropolitan area of this type. The needless reduplication of overhead would greatly reduce the possible service to the public.

Much better would it be for the surrounding towns to contribute to the already established Providence hospitals in the proportion that these institutions now care for their citizens, frequently without compensation. Local pride might here find a legitimate outlet. Let us have all the hospitals that are needed, but let us exercise a wise discretion. If "the health of a community is purchasable" let us get the greatest possible value for our expenditures.

SPEED.

It is the privilege of the medical mind to offer views and opinions on a variety of matters of public interest and importance. The long apprenticeship of such a mind, its varied experiences in the pursuit of professional duties and the diversity of the problems offered it for solution co-operate to qualify its ability to interpret conditions in ways which should be considered valuable to both the learned and the wayfarer. In the review of pres-

ent day conditions it is apparent that that phase of life popularly known as speed is one of far reaching importance, influencing many of the intrinsic elements of our existence. Its medical aspects are quite worthy of consideration and of fundamental importance. The staggering statistical total of death and disability, the obvious retrograde metamorphosis of character disability and efficiency, the enormous increase in crime are in many ways the result of the speed complex and may be explained and in part solved by medical functions. Medical minds foretold these conditions, they also predict their future development.

Neurologists tell us that worry and nerve strain are important causes of mental and vascular disease. The sociologist readily shows that haste in one's preparation for the duties of life and in the later performance of its tasks is the basic feature of incompetence and the criminologist claims that this same speed is responsible for the downfall of those who would hurry what should be a slow, careful upbuilding process of development of mind, means and character. Transportation, work, recreation, education and sometimes diagnosis,—all go with a rush, thoughtfulness and carelessness are left behind with consequent imperfection of the resulting product.

The medical mind is in a very good position to offer valuable advice on and constructive criticism of some aspects of the traffic problem. It should be a part of the education of every child to know how to conduct himself in the daily walks of life. This should begin in the home but it does not; it should be continued in the schools where it does not seem to receive the attention it should. In argument of the former, recall the doting parents who leisurely sojourn about the front fence or steps while their offspring play in the street, a place of ever increasing danger. Of the latter, any physician will tell you that immediately upon dismissal the children promptly disperse in arborescent paths in the street, their circumambient perambulations taking them hither and yon, instead of along the sidewalk where they belong. Some of them do not scruple to dare the approaching motorist to run them down or perhaps, holding sharp instruments in their hands engrave neat parallel striations upon the varnish work of the passing vehicle. There is to be sure an officer at the cross walk to safeguard them but none at the school where their safety should begin. An honor pupil might do this. It would be interesting to know

how much time each day or week is spent in instruction upon this highly important branch of education but to the observant mind there has been no apparent improvement in the past two years. That a child does not know the capitol of Bolivia or even of New York may not lead to serious consequences to life and limb but the idea that children may do as they please and that they need not co-operate with the motorist in the exercise of due care leads to broken heads and necks.

Of late there has been a marked change in the policy of traffic officers who now urge more and more speed. The well known admonition "Safety First" has given way to "Get down in there." "Step on it." This with the frantic and often meaningless semaphoric waving of arms is not calculated to inspire mature thought and sound judgment on the part of motorists and the prophecy of the fourth verse in the second chapter of Nahum is more than fulfilled. The medical mind might even take issue with our worthy and admirable State Police, which has proclaimed (it is alleged), that thirty-five miles an hour must be lived up to on suburban roads and that greater speed may be quite excusable. Even in the crowded city certain organizations seem to be exempt from traffic regulations and precautions,—almost everyone knows who they are. As to the qualifications of drivers it is absolutely essential that each applicant be physically fit, that he understand the English language and that he be free from the influence of alcohol or drugs at the time of operating a motor vehicle. It is obvious that our laws regarding intoxicated drivers are not sufficiently rigorous and that the requirements for drivers' licenses are not complete and in accordance with reasonable demands for public safety. But by far of the greatest importance is careful driving and less speed. We believe that too much speed is a national characteristic, that the medical fraternity should exert a powerful influence for greater care, for more deliberate judgment, for a greater appreciation of the things of life that are worth while and through private and public propaganda assist in a work which must appeal to the thinking and reasonable public.

WILLIAM WILLIAMS KEEN.

To few men in the medical profession is granted a life exceeding the allotted three score and ten, and to fewer still a life so full of achievement as has been that of William Williams Keen, who will celebrate his eighty-ninth birthday on the nineteenth of this month. Most of us find it difficult to keep in touch with the many advances which our profession has made in the comparatively short time since we completed our formal training, but for over sixty years Dr. Keen has not only kept abreast of the times, but has been constantly in the lead. And in those sixty years, medicine,

as an art and as a science, has progressed more rapidly than in any other period in its history. To have seen the development of anesthesia; to have assisted in the establishment of antiseptic, and then, of aseptic surgery; to have witnessed the introduction of all our instruments of precision, not excepting the thermometer; to have served as surgeon in both the Civil War and the World War; and to have been honored repeatedly at home and abroad, must be sources of intense satisfaction. But it must be a still greater pleasure to be continuously active and vigorous, busily engaged in waging the fight of science against bigotry, wherever it may be found. We are glad of this opportunity to greet this dean of American surgeons on his birthday, to express our appreciation of his many services to our profession and to humanity as a whole, and our hope that he may long remain a vital source of inspiration to all of us.

OBITUARY

Dr. Henry John Cole Corrigan died at his home in Providence on May 16, 1925. Dr. Corrigan was born in Providence, November 7, 1875, the son of Thomas and Mary A. (Cole) Corrigan. He prepared at Mowry and Goff's School, attended Holy Cross for a year and then entered Brown, being graduated with the class of 1898. In 1899 he received the degree of A. M. from St. Xavier's College, New York, and in 1902, his M.D. from Columbia College of Physicians and Surgeons. Following his graduation he served as interne at St. Francis Hospital, N. Y. Lying-In Hospital and Randall Island Hospital, all in New York. Shortly after commencing practice in Providence he became physician to St. Vincent's Infant Asylum. Then he joined the staff of St. Joseph's Hospital, having the appointment of assistant visiting surgeon, and then urologist. Of late years he was consulting surgeon to St. Vincent's.

Early in his professional career, Dr. Corrigan developed an interest in urology, and through study and special courses in the clinics of New York and Boston gained skill in the diagnosis and treatment of the genito-urinary tract, and for several years had limited his practice to this field.

Dr. Corrigan was married June 21, 1916, to Miss Martha K. Cole of Providence, who survives him, together with two daughters, Mary Louise and Martha Cole Corrigan.

Devoted to his family, of genial, albeit retiring personality, Dr. Corrigan gained many close friends in the profession, and was beloved by his patients. He was one who could speak naught but well of his fellow man.

His interest in the work of our association was deep and sincere, and when his health permitted, he was a regular attendant at our meetings. His

was a long and distressing illness under which he bore up manfully, and only during the last few weeks of his life did he entirely give up his work.

Dr. Corrigan was a member of the Providence Medical Association, Rhode Island Medical Society, American Medical Association, American Urological Association and the American College of Surgeons.

HENRY J. HOYE, M.D.
V. LEE FITZGERALD, M.D.
JOSEPH F. HAWKINS, M.D.
Committee.

SOCIETIES

THE RHODE ISLAND MEDICAL SOCIETY. *Council.*

November 17, 1925.

The Council met this day at 4 P. M., the President, Dr. DeWolf, presiding.

The budget for the year 1926 was presented by the Treasurer, Dr. J. E. Mowry, as follows:

Collations and Annual Dinner.....	\$600.00
Expenses of Secretary (Sec. hire).....	75.00
Stenographer at Meetings.....	15.00
Printing and Postage.....	100.00
Fuel	650.00
Electricity	50.00
Gas	50.00
Telephone	75.00
City Water	10.00
House Supplies and Expenses.....	125.00
House Repairs	125.00
Librarian	1,404.00
Janitor	600.00
Books and Journals (including Ely Fund, \$74)	150.00
Rhode Island Medical Journal.....	390.00
Treasurer's Bond	25.00
Safe Deposit	5.00
	<hr/>
	\$4,449.00

It was voted that the Council recommend the adoption by the House of Delegates of the budget as read.

The Secretary reported that in accordance with the vote of the House of Delegates at the meeting in May, 1925, relative to the Society defraying the expenses of the Delegate to the American Medical Association, he had communicated with the secretaries of the medical societies of the other New England states as to the custom of their respective societies in this regard. All the states except Vermont and Rhode Island have paid the expenses in whole or part of the delegates and it was moved that the Rhode Island Medical Society pay the expenses of its delegate to the American Medical Association up to \$100.00 or such part

thereof as may be necessary. After being duly seconded the motion prevailed and it was further voted to be recommended to the House of Delegates.

Adjourned.

J. W. LEECH
Secretary

House of Delegates

Medical Library, November 17, 1925.

The House of Delegates was called to order at 4:45 P. M., November 17, 1925, by the President, Dr. Halsey DeWolf.

The report of the Council of even date was presented by the Secretary and accepted.

The Treasurer's budget for 1926 as recommended by the Council was unanimously accepted.

On motion of Dr. Brown, seconded by Dr. Skelton, it was voted to accept the recommendation of the Council that the Rhode Island Medical Society pay delegate's expenses to the American Medical Association up to \$100.00 or such part thereof as may be needed.

The President called the attention of the Delegates to the program of medical talks broadcast by radio under the auspices of the Society as arranged by the Committee on Education, State and National. Objection having been raised to the announcement in the daily press and by the radio announcer of the names of the physicians giving the talks, the committee had omitted this feature. Dr. Mowry presented the following resolution and moved its adoption:—

RESOLVED, that the Rhode Island Medical Society approves the action of the Committee on Education, State and National, in arranging for the radio broadcasting under the auspices of the Rhode Island Medical Society of talks on medical subjects for the education of the public.

The motion was seconded by Dr. Buffum.

Dr. Burgess moved an amendment to add the words "and in omitting the names of speakers." Seconded by Dr. Leech.

The amendment was unanimously adopted after which the resolution so amended to read as follows was adopted:—

RESOLVED, that the Rhode Island Medical Society approves the action of the Committee on Education, State and National, in arranging for radio broadcasting under the auspices of the Rhode Island Medical Society of talks on medical subjects for the education of the public, and in omitting the names of speakers.

Dr. Fulton, Chairman of Committee on Legislation, State and National, presented a draft of a bill designed to reorganize the control of public health matters in Rhode Island, and asked for discussion of the bill and an expression of opinion on the part of the House of Delegates for the guidance of the Committee on Legislation. This bill

essentially seeks the appointment of a Commissioner of Health, a Public Health Council, of which at least three members shall be physicians, and deputy commissioners to administer the various health activities in public health work.

Dr. DeWolf pointed out that this bill is modelled upon the acts of other states where this form of control has been working successfully, notably New York and Maine.

Dr. C. V. Chapin pointed out the advantages of the scheme, especially in the fact that executive authority would be vested in the Commissioner of Health, and legislative authority in the Council. He further stated that while the draft as read was not final but would need further revision and re-writing from a legal standpoint, he approved of the nature of the bill.

Dr. Brown noted a possibility of a division or conflict of authority in the appointment or removal of local health officers.

Dr. Skelton noted no provision requiring that all local health officers be doctors of medicine and also no provision for a Board of Medical Examiners for licensure.

Dr. Brown inquired why a majority of the Council be not physicians.

Dr. Chapin in answer said that as the Council is legislative rather than executive, all classes should be represented. In regard to local health officers Dr. Chapin stated that this was left open as it has been shown that physicians are not always successful as health officers, but that all appointments to these offices must be approved by the Commissioner. The bill also provides for the combining of small communities into larger groups.

It was moved by Dr. Leech that the following resolution be adopted:—

RESOLVED, that the Rhode Island Medical Society approve in principle the reorganization of the State control of public health by legislation providing for a Commissioner of Health with advisory council and deputies to administer the various activities of public health work.

Seconded by Dr. Brown and unanimously adopted.

The Secretary read a letter from the Bureau of Legal Medicine and Legislation, American Medical Association, asking the attitude of the Society upon the question of seeking special favors for physicians under traffic laws and regulations, with respect to speed limits, parking privileges, and rights of way. Upon motion of Dr. Skelton, duly seconded, it was voted to lay the matter on the table.

Adjourned.

J. W. LEECH
Secretary

A meeting of the House of Delegates was held on Tuesday, November 17, 1925, at 5 o'clock, at

Medical Library Building to consider the financial budget.

The quarterly meeting of the Rhode Island Medical Society was held Thursday, December 3, 1925, at 4 P. M., at the Medical Library, with the following program: "Measles Immunization," Dr. H. P. B. Jordan; "Diagnosis and Treatment of Gall Bladder Disease," Dr. J. B. Ferguson; "Deep X-Ray Treatment—Its Development and Present Status," Drs. I. Gerber and S. Albert; "The Infected Kidney—Its Physiology, Pathology and Treatment," Dr. Clyde Leroy Deming, Clinical Professor of Surgery, Yale School of Medicine.

A collation was served.

J. W. LEECH
Secretary

During the meeting the important matter of cataloguing the books of the library was brought up by Dr. J. W. Keefe, who said:

"I have occasion now and again to visit the library, and was very much surprised to find that the library has never been properly catalogued. If you want a certain book on any particular subject, you have to ask Miss Dickerman, the librarian, who has a good knowledge of the books, but there is no card catalogue, or any other catalogue, and it seems to me that this important library should have one. Now when Miss Dickerman is away, on a vacation, or illness, as it occurred this summer, you come in here and you have to go through the stacks, one shelf after another, in your endeavor to find what you are looking for. It seems to me that we should hire someone to properly catalogue this wonderful library that we have here, and I told our President that I am willing to give some contribution to further this aim; something to start the ball rolling, and get this library catalogued to the advantage of all."

Motion made by Dr. Leech and duly seconded to refer this matter of cataloguing the library to the Committee on Library. So voted.

Dr. Keefe: Does this give the committee power to act?

Dr. DeWolf: It will have to be referred to the House of Delegates for action.

PROVIDENCE MEDICAL ASSOCIATION.

The regular monthly meeting of the Providence Medical Association was held at the Medical Library, 106 Francis Street, Monday evening, December 7, 1925, at 8:45 o'clock, with the following program: "Pneumonia with Special Reference to Treatment," Elihu S. Wing, M.D.; "Some New

(Continued on page 16)

PERIODIC HEALTH EXAMINATION

PREPARED AND PUBLISHED BY THE

American Medical Association, 535 North Dearborn Street, Chicago, Illinois

Form A

HISTORY FORM

Use check mark (✓) in making affirmative answer to questions wherever possible.

1. Name				Country of Birth			
2. Address				White		Colored	
3. Age		Religion		Single	Married	Widowed	Divorced
4. What is your present occupation							
5. Have you changed your work frequently				Why			
6. What are the conditions of your work							
Regular	Dangerous	Dark	Smelly	Seated	Hours per day		
Satisfactory	Fatiguing	Light	Noisy	Standing	Days per week		
Monotonous	Indoors	Out	Dusty	Crowded	Walking		
7. Are your earnings sufficient to support yourself and dependents comfortably							
8. What are your home conditions							
In a family		Congenial		Quiet		Room and bed to yourself	
Alone		Depressing		Irritating		Time to yourself	
9. What are your sleeping conditions							
Hours in bed		Windows open		Restful		Disturbed	
10. How often do you eat							
Regularly		Where		Between meals		Time of meals	
11. Are you a moderate or hearty eater, taking one or more helpings at a meal of							
Meat (including fish and eggs)				Pie, Cake or Pastry		Salads	
Baked beans				Sweets or Sugar		Bread	
Green vegetables (spinach, cabbage, etc.)				Fruits		Butter	
Potatoes (rice, macaroni or cereal)							
12. How much do you drink daily of							
Milk		Tea		Soft drinks			
Water		Coffee		Alcoholic drinks			
13. How frequently do you use candy				How much tobacco			
14. Do you have a movement of the bowels daily				With the use of drugs			
15. What exercise do you take in addition to your work							
16. What are your social, religious, political, club or trade associations							
17. What are your pleasures				Recreations		Hobbies	
18. Are you subject to worries				Moods		Periods of alternating gloom and cheerfulness	
19. Have you ever been ill with any of the following, or any other severe illness and at what ages							
Tuberculosis		Scarlet Fever		Frequent Colds			
Malaria		Diphtheria		Convulsive seizures			
Rheumatism		Typhoid Fever		Nervous Breakdown			
Syphilis or Gonorrhea		Tonsillitis (Sore Throat)		Migraine or Neuralgia			
19 A. Do you ever have							
Headaches		Colds		Nausea or vomiting			
Loss of appetite		Cramps		Palpitation			
Shortness of breath		Swellings		Boils			
20. Have you been protected against small pox				typhoid	diphtheria	or other diseases by vaccination and when	
21. Have you had any accidents, broken bones or surgical operations							
22. How often do you consult your dentist				When last			
23. Are your parents, brothers and sisters living							
If not what were the causes of death and at what ages							
24. Have either of your parents or any brother or sister had consumption				cancer			
Insanity		epilepsy		gout		diabetes	
25. Do you consider yourself in good health				If not, what is your complaint			
26. Are your monthly periods regular				Prolonged			
27. Have they interfered with your occupation				Excessive			
28. Have pregnancies and confinements been free from accident				In what way			

Form B

PHYSICAL EXAMINATION RECORD

Name	Case No.	Date
1. Height	Weight, Present	Pulse
	Usual	Sitting
	Standard	After exercise
	(for age and height)	2 minutes later
Hearing R	Vision R	Corrected R
L	L	L
Urine: appearance	Sp. Gr.	Alb.
Feces (when indicated): appearance	Blood	Sugar
		Parasites

Standing

Posture
Musculature
Nutrition
Skin
Superficial Glands
Female Breast
Hands
Arms
Male Genitalia
Hernia
Legs
Feet
Romberg sign

Record only abnormal conditions

(This space, supposedly vacant for purposes indicated above, is used by the Editor to explain that the plan and form of these examinations have been endorsed by the American Medical Association and their general use recommended; a demonstrating examination took place before the Secretary's Convention in Chicago, Nov. 21st, 1925.)

3. Sitting

Hair
Eye reflexes
Nose
Teeth
Gums
Tongue
Tonsils
Pharynx
Ears
Chest
Heart
Lungs
Visceral Ptoses

4. Lying down

Abdomen
Reflexes
Sensation
Liver
Spleen
Kidneys
Prostate Gland
Female genitalia
Rectum (hemorrhoids)

5. **Summary:** Defects of function and structure and errors of habit.

6. **Advice given to the patient:**

(Continued from page 13)

Researches on Blood Sugar," Philip H. Mitchell, Ph.D., Associate Professor of Physiology at Brown University.

The Standing Committee approved the following applications for membership: Elizabeth L. Martin, Florian G. Ruest, Paul F. Thompson, Benj. S. Sharp, and they were elected to membership. Collation followed.

PETER PINEO CHASE
Secretary

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. Albert H. Miller, Monday evening, November 2, 1925, at 8:45 o'clock.

The records of the last meeting were read and approved.

The first paper of the evening was by Dr. Robert M. Lord on "A Report on Fifty Cases of Pyelitis in Children." The incidence of this is greatest between the ages of six months and three years.

He finds three clinical types but the majority have marked respiratory symptoms and there are some signs of this in all cases. The seasonal incidence also corresponds with that of respiratory infections, all of which he thinks points to a close association between the respiratory and urinary tracts. The most satisfactory treatment is alkalization but tonsillectomy is the treatment for resistant cases. The paper was discussed by Drs. Calder, Adelman, Utter, Mathews, Allinson, Sundin, Feinberg and Lord.

The second paper was by Dr. A. R. Newsam on the "Use of Ultra-Violet Radiation in Pediatrics." He spoke of the light treatment and the rather vague knowledge we have as to the histological effect of the actinic rays. Apparently the ultra-violet rays increase the absorption of calcium and phosphorus. The results obtained in several clinics treating rickets, tetany, T. B. glands and many other conditions were reviewed. Following this several slides showed the effect of light on animals and children.

The paper was discussed by Drs. Adelman, Bufum, Blosser, Kramer and Newsam.

Dr. Isaac Gerber read on the "X-Ray Treatment of Superficial Pyogenic Infections."

This treatment has been known for years but has revived lately. Furuncles, carbuncles, etc., in the early stages may decrease in advanced processes which are converted into one large cavity with liquid pus. This may rupture spontaneously or be incised. The best explanation is a local and general immunity due to the action on the leucocytes and production of antibodies. The paper was discussed by Drs. Kingman, Matteson, Allinson, Fisher, Kelly and Gerber.

Dr. I. H. Noyes reported a case of inversion

of the uterus. This occurred an hour after delivery when an attempt to express the placenta was made and the cord was pulled upon. Under anesthesia the uterus was reduced and the patient survived after severe shock.

Dr. Henry J. Hoye read an obituary on Dr. Henry J. C. Corrigan and the Secretary was instructed to spread this on the records, send a copy to the family and one to the R. I. MEDICAL JOURNAL.

On motion of Dr. Utter it was voted that the President be empowered to appoint a committee of three to take up the matter of the duties and personnel of a medical milk commission.

The meeting then adjourned. Attendance 82. Collation was served.

Respectfully submitted
PETER PINEO CHASE
Secretary

THE R. I. SOCIETY FOR NEUROLOGY AND PSYCHIATRY.

The Rhode Island Society for Neurology and Psychiatry held its December meeting on the evening of December 14, 1925, at Butler Hospital.

Doctor Paul L. DeNicola was elected to membership.

The program consisted of a paper, "The Treatment of Neurosyphilis—Personal Observations and Opinions," by William Newton Hughes, A.M., M.D.

HOSPITALS

THE MEMORIAL HOSPITAL.

The following is a report of the December meeting of the Memorial Hospital Staff:

Meeting called to order by President Wheaton at 9:30 P. M.

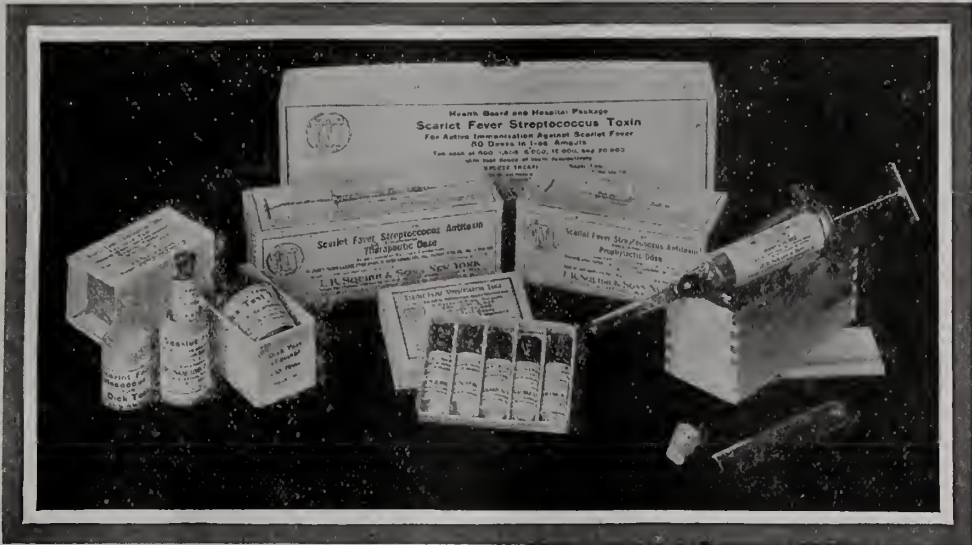
Minutes of November meeting read and approved. Members present: Drs. Wheaton, Wing, Donley, Hawkins, Nourie, Kerney, McGraw, Saklad, Bates, Towle, Charles Farrell, Seal. Dr. Wheaton read a report of the Medical Service. Dr. Towle read a report of the Surgical Service. Dr. A. A. Seal read a very interesting and instructive paper on "Local Infection from the Standpoint of the Dentist."

Dr. Wing moved that the present officers continue for another year. It was so voted.

Dr. Wheaton read a communication from the Social Service relative to the Children's Christmas Party.

Meeting adjourned at 11:30 P. M.

Very truly yours
JOHN F. KENNEY, M.D.
Secretary Memorial Hospital Staff



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THE RHODE ISLAND MEDICAL JOURNAL



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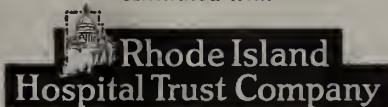
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ORIGINAL ARTICLES

IDEALS AND ETHICS*

PRESIDENT'S ADDRESS

BY ALBERT H. MILLER, M.D.

PROVIDENCE, R. I.

We celebrate, at this meeting, the seventy-sixth anniversary of the founding of the Providence Medical Association. What vision of the future was in the minds of the founders, we cannot know. We doubt if it was more brilliant than the present success of the association. We learn from the charter the objects of the association:—"the advancement of sound medical science and the promotion of the character, interests and honor of the medical fraternity." For the first of these objects, "the advancement of sound medical science," we hold each year, nine monthly meetings at which medical cases and specimens are presented and scientific papers are read and discussed. Through its membership, the association is intimately connected with the staffs of twelve first grade hospitals. The activities of these institutions and of a medical fraternity singularly free from dissention and discord, produce a wealth of scientific material of which this association is the principal outlet. In addition to these advantages, the association is intimately connected with the faculty of a great university and is within easy distance of many of the world's greatest medical institutions.

In the utilization of this great mass of scientific material, the only handicap under which the association labors is lack of time. We have been unable, through lack of time, to pay to the discussion of papers the attention which they merited and which the members of the association would have enjoyed. Through lack of time, we have sadly neglected the presentation of cases and of specimens, which should be valuable and interesting features of all our sessions.

By starting our meetings promptly and by reducing the time spent on routine business to the minimum, we have succeeded during the past year in bringing out about twice the number of papers usually presented, without apparent hardship to the members of the association. We are trying, this evening, the innovation of a scientific paper on the program of the annual meeting. Having found that we can gain an appreciable amount of time in the ways indicated, the next step for consideration will be the advisability of scheduling meetings at a somewhat earlier hour. We could also readily arrange for one extra meeting a year. No meetings are at present held in July, August and September. The only reasons for not meeting in September are lack of precedent and authority.

In carrying out the second of the objects of the association, "the promotion of the character, interests and honor of the medical fraternity," we have the great advantage of an intimate connection with the American Medical Association. The Providence Medical Association alone decides what members of the community are eligible for membership in the American Medical Association. Through our representation in the House of Delegates of the Rhode Island Medical Society, which is in turn represented in the House of Delegates of the American Medical Association, the Providence Medical Association takes its part in controlling the policy of this greatest of medical organizations. The American Medical Association is constantly striving to improve the character, interests and honor of the medical fraternity. You are familiar with the results of its campaign for clean medical advertising. Although this campaign is carried out unobtrusively, the results are such that objectional medical advertisements are no longer to be found in approved medical journals nor in the better newspapers and magazines. In 1900, the American Medical Association began the publication of statistics in regard to the medical schools of the country. Medical education was then in deplorable condition. Most of the colleges were poorly equipped as to laboratories, clinical advantages and instructors. Many were conducted

*Read before the Providence Medical Association, at the Annual Meeting, January 4, 1926.

solely for private gain. Some were mere diploma factories. As the result of the publication of statistics in *THE JOURNAL* year after year, and of the work of the Council on Medical Education, established by the American Medical Association in 1904, the medical colleges of the country are now in satisfactory condition. Many are connected with great universities and have their own teaching hospitals and dispensaries. Seventy-one of the eighty medical schools of the country fulfill the rigid requirements set by the Council on Medical Education for Class A medical schools. This striking result has been achieved by strictly ethical means:—through publication of data in *THE JOURNAL*, by enlisting the co-operation of medical faculties and state licensing boards, and without dissemination of propaganda through the daily papers. In 1914, the American Medical Association started a similar campaign for the improvement of hospitals. In 1919, it joined with other organizations interested in hospital welfare to form the American Conference on Hospital Service. The improved conditions in our hospitals which have resulted from these activities are everywhere evident. I have dwelt at some length upon this work of our national organization for the following reason: Recently there appeared in our local papers some misleading propaganda to the effect that the standardization of hospitals is due solely to the work of one of the minor organizations belonging to the American Conference on Hospital Service. Such unethical methods give us little concern and are mentioned only to accentuate the highly ethical stand taken by the American Medical Association in matters for the common good.

Maintenance of a high standard of medical ethics is a principal function of the American Medical Association and of its constituent societies. A code of ethics is to the medical profession what a code of morals is to youth. While it is formulated distinctly for the benefit of the patient, its final advantage is for the medical profession. The Principles of Ethics of the American Medical Association governs the conduct of the members of the Providence Medical Association in their relations to each other and with their patients. The past generation of members of this association—their revered names are still fresh in our memory—maintained a high standard of medi-

cal ethics and left us a heritage of the greatest value. We have in Providence a united medical fraternity, unusually free from jealousy and functioning with a minimum of friction. Relations with patients are on as happy a basis as those between our members. Malpractice suits against members of this association are practically unheard of. Many widespread violations of the principles of medical ethics have never gained a foothold in this district. The secret division of fees is not a feature of our professional relations and is never practiced by the reputable physicians of the community. Professional fees are based on the value of the service rendered and not on the basis of percentage of the income or wealth of the patient. In the selection of assistants, our surgeons universally choose the most highly trained available without regard to the fact that they could increase their immediate income by employing the untrained and inefficient for this important work. As one result, we do not have the nurse or lay anesthetist problem which is becoming more and more difficult in many communities. In the conduct of our hospitals, the authorities strive for the welfare of the patients but do not overlook the interests of the medical and surgical staffs. We are singularly free from abuse of hospital privileges by patients who are not entitled to free service. Our Workman's Compensation Act has reasonable regard for the interests of the medical profession and does not foster the disgraceful conditions under which compensation work is done in neighboring states.

Our plain duty is to preserve and to pass on undiminished the high ethical standard which we have inherited. Each member of this association should be conversant with the Principles of Medical Ethics as promulgated by the national organization and should make these principles his guide in his professional relations. Consultations on difficult cases are resorted to less frequently than was the case formerly. Such consultations resulted in benefit to both patient and consultants and should be more in favor than they are at present. An unfortunate feature of increased medical specialization is the treatment of patients by specialists without advice and consultation from a family physician. The inevitable extension of specialization to cope with the swiftly gaining flood of medical knowledge has changed the con-

ditions but not the ethical principles underlying medical practice. Neglect of the privilege of consultation, aided by group practice, contract practice and free or partly paid clinics, is rapidly pushing aside the general practitioner of medicine. This lack of co-operation often results in the patients turning to chiropractors, osteopaths or to medical services in other cities. The present remedy for this condition lies not in a revision of our code of ethics but in study and observance of our present code.

The changed status of homeopathy presents an ethical problem. There are two homeopathic medical schools in the country, one listed by the American Medical Association in Class A, and one in Class B. There are six homeopathic hospitals maintaining such a high standard that they are included in the list of hospitals approved for internships by the Council on Medical Education and Hospitals. Practice in these hospitals differs in no respect from that in other hospitals. Members of this association are on the staff of the Rhode Island Homeopathic Hospital and consult with graduates of homeopathic schools without prejudice. It can no longer be said that graduates of homeopathic colleges are practicing or supporting an exclusive system of medicine. It would be for the common interest to persuade these men to give up their special society and to invite them to become members of this association.

If time permitted, I would like to dwell upon the services of this association to the community in providing free medical treatment to the poor and upon the cheerful and gratuitous medical treatment of members of the medical profession and their families, an instance of organized unselfish service unique in a commercialized age. This service is performed with no idea of immediate or ultimate gain but in accordance with medical tradition dating from the time of Galen and Hippocrates.

With a feeling of deep regret I approach the end of my term as President of this distinguished association. The spirit of co-operation among members, committees and officers has made my year's duty a pleasure. I am greatly indebted to the officers and committees of the association for counsel and aid. The members of the standing committee have attended their meetings promptly and regularly. The collation committee has per-

formed its duties with evident success. The Treasurer has guarded our finances with the careful attention evident in his report. The Secretary has presented accurate, carefully phrased reports of the transactions of the association and of the standing committee. I suspect that many midnight hours were spent in their preparation. For his advice and assistance, frequently sought and cheerfully granted, I am especially grateful. To those who have contributed so largely to the success of the year's work by reading and discussing papers, I extend my personal gratitude and that of the association. Many of the younger members of the society have read papers during the past year. Their work has been valuable, interesting and well received. To those whom I have neglected in the preparation of the programs, I offer an apology. My neglect has not been intentional but inevitable to the selection of a comparatively small number of papers from an abundant mass of valuable material. For my successor in office I ask the same co-operation which has made my year's work a pleasure and its termination a cause for regret.

THE TREATMENT OF AURICULAR FIBRILLATION*

SAMUEL A. LEVINE, M.D.

BOSTON, MASS.

Auricular fibrillation is a disturbance in the mechanism of the heart that occurs in a great variety of conditions. This disorder follows the institution of a circus motion in the cardiac impulse which instead of progressing normally from the pace maker at the sino-auricular node and traveling peripherally in the usual manner to activate both auricles rhythmically, pursues a continuous and irregular course around the mouths of the superior and inferior vena cava. The circuit is completed in about 1/400 of a minute and because of the extremely rapid rate and the difficulty which the impulse finds in passing from fiber to fiber, it moves now to one side and now to another always seeking tissue that has already recovered from the refractory state which followed

*Read before the Annual Meeting of the Rhode Island Medical Society, June 4, 1925.

From the Medical Clinic of the Peter Bent Brigham Hospital, Boston.

the previous contraction. As a result, neighboring bits of auricular tissue may be on the one hand trying to contract and on the other hand motionless. Consequently the body of the auricle does not actually contract but rather remains more or less distended in diastole with fibrillary twitching going on here and there. The impulses in this condition number around 400 to the minute and all try to get down to the ventricle through the conduction apparatus, i. e., the a-v node of Tawara and the Bundle of His. The conduction tissue is able to transmit but a portion of these and the result is an irregular rapid contraction of the ventricle.

This condition in the past has had various names—perpetual arrhythmia, absolute or total irregularity of the heart and delirium cordis. It occurs most commonly associated with rheumatic mitral stenosis developing many years after the original rheumatic injury to the heart. Auricular fibrillation is also a very frequent accompaniment of the condition called chronic myocarditis in middle aged or elderly people in whom there is no important disease of the valves but rather some functional or structural damage to the musculature of the heart. The above two conditions account for most instances of the permanent form of auricular fibrillation, although the transient form is not altogether infrequent even with mitral stenosis and chronic myocarditis.

The third condition in which auricular fibrillation occurs with frequency is hyperthyroidism, for here it is not at all unusual; as a rule it is the paroxysmal type. In some cases of hyperthyroidism paroxysmal auricular fibrillation may be the only striking finding that the patient manifests. The close association of such paroxysms and an underlying thyroid disturbance one must constantly keep in mind. Occasionally auricular fibrillation interrupts the course of acute infections, particularly rheumatic fever and pneumonia, and though generally under such circumstances it is transient it may remain permanent. At times it produces an acute heart upset during the convalescence following any surgical operation. I have seen this happen several times. It also is not a rare occurrence during the course of digitalis therapy in an otherwise regular heart. There remains a small group of patients in whom transient auricular fibrillation develops where it is difficult to picture

its relationship to the complaints, such as gall bladder disease, urticaria and angio-neurotic edema, etc. Finally, I have seen several individuals with transient auricular fibrillation and one with the permanent form who after the most thorough examination showed no evidence of any disease whatever; the heart except for the arrhythmia seemed entirely normal. One can readily see that after the recognition of auricular fibrillation in any given patient the treatment will depend somewhat on the underlying condition.

Before taking up on the important question of treatment let us first consider the means we have of diagnosis. At the outset it is well to remember that auricular fibrillation, in the great majority of instances, can be recognized at the bedside using only those means that the physician always carries with him. A convenient rule is one I heard Sir Thomas Lewis make years ago, i. e., given a decompensated cardiac with a heart rate as counted at the apex of over a hundred and a radial pulse rate that is appreciably less, (a pulse deficit of ten or more beats) if the rhythm seems grossly irregular and the pulse is irregular in both time and force the condition is auricular fibrillation nine times out of ten. There are occasional exceptions when an apparently total arrhythmia results from auricular flutter, numerous extra systoles and other disturbances, but they are not common. If in addition there can be found an underlying disease that frequently is associated with it, like mitral stenosis or hyperthyroidism, the diagnosis is even more certain. Proof of its presence may be obtained by the use of graphic methods, for in polygraphic tracings the auricular wave disappears as the auricles are no longer contracting and in the electrocardiograms the changes are quite pathognomonic. These examinations although confirmatory are not generally necessary.

Apart from the treatment of the underlying and more general condition which is beyond the scope of this discussion, the treatment of auricular fibrillation is a matter of the intelligent use of digitalis. There is no other condition that so dramatically responds to the proper administration of digitalis, for in a measure it may be regarded as specific as mercury and salvarsan are for syphilis. In hyperthyroidism digitalis may prove helpful; but curing the patient of the thyroid disease can make it unnecessary for one to use digitalis there-

after as the fibrillation is apt to disappear. After all the other provisions are made for the care of the patient if auricular fibrillation exists it is then necessary to administer that dose of digitalis which will slow the ventricular rate to about normal. Untreated, the heart rate is apt to be rapid and many beats are ineffective in sending any blood to the capillaries where it is needed. Treatment produces longer diastolic pauses as the ventricular rate slows, all beats reach the periphery and the pulse deficit disappears. To obtain this result about two grams or 30 grains of powdered leaves or 20 c.c. of the tincture of digitalis is necessary for the average patient, (i. e., 30 milligrams per kilo weight).^{*} This dose can be given quickly or slowly depending on the urgency of the situation, although when more than a few days are spent in the procedure a slightly greater amount may be necessary as about two grains of digitalis is being eliminated daily.

In the ordinary case where no digitalis has previously been given the patient should get not more than half the complete digitalizing dose during the first twenty-four hours. This would mean 1.0 gram of powdered leaves or 10 pills each containing 0.1 gram. They may be given two at a time and repeated during the day. It may be just as well to give only seven or eight such pills that day. The decision will depend on how sick the patient is, how certain you are that he has had no digitalis previously and how well he is going to be observed. The second day one should give about one-quarter of the full dose or about 5 pills of 0.1 gram each in divided doses. Thereafter the dose can be 0.1 gram three times a day until the desired effect is produced, when the patient is then placed on the maintenance dose of about 0.1 gram daily. The purpose of the maintenance dose is to conserve the improvement obtained by the digitalization from day to day, for inasmuch as the body would lose the effect of about 0.1 gram daily it must be replenished. If, however, the pa-

tient has been taking digitalis previously it would be unwise to give such large doses and more satisfactory to dispense 0.1 gram three times daily.

In general it may be said that digitalis is given until the therapeutic effect is produced. This result is easily gauged in patients with auricular fibrillation. The physician must follow the heart rate as counted at the apex. It will be found that the apex rate will gradually slow and the pulse deficit will simultaneously either disappear entirely or diminish. It is not sufficient to count the pulse rate, for this might be normal to begin with at a time when the heart rate is actually very rapid and the pulse rate may increase, let us say, from 60 to 80 as the ventricular rate is falling from 120 to 90. Other signs of improvement of the circulation will be observed such as an increase in urine output, a loss of weight, a diminution in the amount of oedema, a decrease in the degree of dyspnoea and a general improvement of the patient's condition. When such evidence is obtained before the calculated dose has been administered the drug should be discontinued and the daily maintenance pill of 0.1 gram be given. Patients vary somewhat in the amount of digitalis needed to produce an effect and so some will need less and others will need considerably more than the average amount.

Although it is extremely important to give sufficient digitalis to obtain proper results, it is also imperative that we should not give too much. We must therefore watch for toxic manifestations of the drug. These generally occur after the desired slowing of the heart rate is obtained and in that way may be avoided by omitting the drug when the rate has reached about 70. At times despite the usual care the final few pills prove to have been unnecessary and the therapeutic dose is exceeded. The indications of intoxication are of two types, subjective and objective. On the one hand the patients may complain of a stubborn nausea with or without vomiting. With this there is apt to be a general feeling of meanness and sickness. Rarely there is diarrhoea and visual and mental symptoms such as yellow lights before the eyes and even psychosis. On the other hand, evidence of toxic action is obtained by auscultation. The most common observation is digitalis coupling of beats. This is easily detected in hearts with previously regular rhythm, for then a regular pairing of beats is heard, a quick beat and compensa-

^{*}It is well to remember in this connection that a minim is not a drop, so that in giving 1 c. c. or 15 minims of a tincture one cannot order 15 drops. The number of drops per c. c. has varied from 30 to 60 (and not 15 as one might have expected) in a series of tinctures that I once examined and the variations depended on the size of the dropper, the angle at which the dropper was held and the rate of flow of the drops. It is therefore impracticable to give drops and much more satisfactory to use pills of the powdered leaf.

tory pause occurring in regular sequence. In cases of auricular fibrillation it may be difficult to recognize this because the original irregularity already has some quick beats and pauses as characteristic of it. When digitalis coupling develops, however, it may be evident that whenever there is a quick beat a pause follows and that pauses do not come after a previous beat of normal length but always after a short beat. With experience one may diagnose this phenomenon from the sense of coupling that is elicited.

A further indication of intoxication is the development of heart block. In patients with auricular fibrillation this manifests itself in a change to a perfectly regular ventricular rate. When patients who have had the perpetual arrhythmia show a regular rhythm during digitalis therapy the drug should be omitted because it often indicates that complete heart block exists and that auricular fibrillation has not ceased. When this happens the regular ventricular rate is generally over 50 and may be over 100 although complete heart block is present. In other words regularization of the heart in auricular fibrillation does not necessarily mean that the normal rhythm has been established. Whether the fibrillation continued or ceased under such circumstances it would be wise to omit the drug and after several days if auricular fibrillation had not ceased the irregularity will reappear. If digitalis is continued when complete block has developed the poisoning may prove fatal. A final indication for discontinuing the drug is if unusual slowing occurs. The ventricular rate may drop below 50 and although no harm need result the optimum heart rate for a patient in bed is around 60. The above criteria are sufficient for all practical purposes to administer digitalis therapy properly in the ordinary cases of auricular fibrillation.

There are times when greater speed is needed in digitalization although this is rare. Under such circumstances a dose of 0.5 mg. of strophanthin may be given intravenously. This should not be carried out if the patient has had digitalis in the previous week, for there is danger of an immediate fatality. Realizing that a therapeutic effect on the heart may be obtained within 12 to 18 hours following oral administration it becomes rarely necessary to use any other method. At times vomiting interferes with digitalis therapy and this might require some method of administration

other than the oral. It must not be forgotten that nausea and vomiting is as commonly the result of insufficient digitalis as it is of an overdose. It may, however, prevent the retention of the pills that are given by mouth. One can then give digitalis by rectum using an infusion or the tincture well diluted in water in much the same dosage as when used orally. Or one can use sterile ampules of digitalis intramuscularly. The latter method is particularly applicable in surgical patients especially during the stage of anaesthesia. For a quick effect 0.5 to 1.0 gram of digitalis may be given at one time if the patient previously had not had any of the drug, and somewhat less if he had. Similar rapid digitalization using the intramuscular or the intravenous method is the procedure of choice in the rare instances where a grave condition exists. I once saw a patient suffering from pneumonia suddenly develop auricular fibrillation and quickly become moribund. A half hour after the intravenous injection of 0.5 mg. of strophanthin the apex rate fell from over 200 to about 100, the patient was revived and recovered.

The treatment for the transient form of auricular fibrillation has a slightly different aspect. If the attacks are rare they may call for treatment along the above lines for each specific attack. If they come frequently it might be possible to prevent their recurrence by giving constant daily doses of quinidine sulphate 0.2 to 0.3 gram two to three times a day. This is not always successful and when quinidine fails it is desirable to digitalize the patient as outlined above and to keep him so constantly. The difference between quinidine and digitalis in this respect is that the former tends to prevent the recurrence of auricular fibrillation and the latter prepares the heart so that when the fibrillation returns the ventricular rate does not accelerate. I have seen patients with transient auricular fibrillation complain of considerable distress and show a rapid, irregular heart during attacks when taking no digitalis and later when digitalized go through a paroxysm of fibrillation and be absolutely unaware of it because the heart rate though irregular during that spell would be quite slow. There is considerable difference of opinion whether quinidine is of value in the permanent form of auricular fibrillation. The writer at present believes that there is very little to be gained by it and that the risk in its use is considerable. For general practice it should be limited to the treatment of the transient form of this arrhythmia.

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EDITORIALS

A COMMISSIONER OF HEALTH

At the time of going to press no action of the Legislature had definitely disposed of the act now before it relating to the appointment of a Commissioner of Health.

This act proposes an important change in public health government in Rhode Island at a time when need of a change was never more evident;

it furthermore has the stamp of approval of the organized medical bodies of the State.

The act should pass with no opposition; it would be hard to understand adverse criticism of legislation the enacting of which speaks for the betterment of the welfare of a community.

Analytical scrutiny of its various sections impresses not only the medical men but the lay mind as well of its entire practicability.

Men with trained minds in matters of health and in disease-control have long realized an impotence in striving with problems that bear so in-

timately upon the public weal, the guardianship of which has rested with a state organization that unfortunately has never been vested with plenary powers to enforce its rulings, whose suggestions have often been ignored or repudiated and whose evident status is to all intent only that of an advisory body.

To perpetuate existing conditions that open the door, one may say, invites infringement of prescribed health laws, would appear futile and we should no longer tolerate a continuance of affairs so essentially repugnant not only to all humanitarian ideals, but what is infinitely more, to the public health welfare.

The imperative necessity of a change is obvious.

Undoubtedly, the solution of the problem is before us.

THE MEDICAL VIEW POINT

Someone has said that the very rich and the very poor get the best medical treatment, which, in the large urban communities is probably true. The rich because they are able to pay the large fees of a group of specialists, at a fashionable afternoon appointment, and the poor because they can endure the interminably long waiting period on a wooden bench, where in the forenoon they meet the same doctors at a free clinic. What has brought this about?

One does not have to look back very far to see the general physician whose position among his people was certainly as secure as that of any man. His two-wheeled chaise was hung on thorough braces, his pill case was small and invariably black as were his clothes, he had—or always assumed—an air of dignity, in fact he could make an excellent post mortem examination with no greater preparation than to turn up his coat sleeves. Was it Stevenson who said of him? "He is the flower, such as it is, of our civilization."

The outcome of a case might be determined by whether the hickory bark, from which the tea was steeped, had been gathered by stripping it up the tree for an emetic, or down the tree for a purge. When the ending was fatal, the doctor was the calm and sympathetic adviser of the family, and not infrequently sang at the funeral or at any rate bore one corner of the coffin in its difficult journey through the narrow front hall. He was a scientist

in a small way, a philosopher in a large way and often achieved no small success as a poet. Peace to his ashes, for he was a hard-worked man and well deserves his long rest. He was an individualist. His descendant, the present day physician, is too well known to need any descriptive comment. Still a devotee at the shrine of Minerva, he pours his libations from test tubes, keeps his fires burning with electric thermostats, and sees the goddess with eyes that penetrate a thousand times further. But still, although to a less degree, he is an individualist.

Granted, that in time he will be what society at large wants him to be, how much at present is he doing to help cure the ills of society at large? Granted again that his goddess is most exacting upon the time of one who searches for more wisdom, is it not true that man generally finds time to accomplish that which he really desires?

His brothers in finance, industry, and agriculture, band together and go up on distant hills, where, with the obstruction of the trees removed, they are able to view the woods as an entity. To some extent, the medical profession is beginning to get such a viewpoint, but it should do it from a much wider angle than that described by the local medical society. What about the medical care of the great majority who are not very rich or very poor? What about the rural parts where doctors no longer thrive? What about health insurance? If, as students, doctors worship the goddess of wisdom, surely then, being skilled in thinking, society would welcome comments upon health problems, from them as collectivists.

AS TO PUBLIC HEALTH

What George Bernard Shaw has to say on any subject may interest but does not convince thinking readers. Criticism is a favorite pastime with many writers, but with him it is largely a commercial asset.

Just now he is heaping coals of fire upon the heads of the medical profession. He calls the doctors' "trust" or "union" the greatest ever and destined to destroy personal liberty in the treatment of the sick. It seemed that regular physicians failed to cure his wife of an ailment. Giving up

in despair he took her to a healer who promised a cure and succeeded, according to Mr. Shaw.

There is always some, and sometimes much, truth in the caustic words which flow from his pen, otherwise he could not sell his ideas for such fabulous sums.

The criticism is not new, yet it is important to realize that there are many people who support it whether their belief is honest or commercial.

There have been healers of all sorts for centuries and there always will be, so long as people want to be hoodwinked. It is their privilege to do as they please, so long as they do not endanger the lives and happiness of the public. Education is not having much effect upon the gullibility of the human race or so it seems, when one reads of the warm reception Indian sun worshippers and all sorts of isms are given in "high" society.

Physicians should not make the mistake of conducting an inquisition upon these fakers. These can't be suppressed altogether and persecution would only help their cause. If, however, a chiropractic or any other healer fails to recognize a ruptured appendix or case of diphtheria and death results no mercy should be shown.

Physicians should, however, guard the public against any official recognition of any body of untrained healers. It is a disagreeable task to go before the legislature every year yet it is the duty of every physician to do it. The very best solution of this problem is to require a uniform educational standard for all those who wish to treat sick people. A committee of the Rhode Island Medical Society is endeavoring to formulate a definite outline of educational requirements which can be incorporated into a bill and presented to the legislature. This effort should enlist the active assistance of every physician in the state.

Undoubtedly the very best method of counteracting the flamboyant promises of healers is education. Educators have developed a fine program of study which young people need to prepare them for life, but in it there is little attention given to the instruction of pupils about health and disease. The subject has always been neglected, and what has been taught is unimportant. As a result adults may know a lot about literature, science, etc., and yet be as ignorant as a child about sickness and its prevention.

Much health educating is being done but much more should be done by newspapers, magazines, lectures, etc. People are eager to learn but they want the truth and physicians should see to it that they get it, and not a lot of trash.

CLINICAL CONFERENCES

The course of Clinical Conferences are now about half completed and records of attendance have been kept. On the whole, interest in the conferences have been gratifying to those who arranged the courses. The profession has evidenced its appreciation by a surprisingly large attendance. Certain lectures have been better attended than others and indicate the subjects that are most desired. This year's program was arranged without any such knowledge available. It was even a matter of conjecture whether or not the conferences would be accepted. It now seems as if the committee would be justified in repeating them next year. In addition they will be in a position to select and enlarge those subjects which have been most enthusiastically received by reducing those in which there has been the least interest. The work this year may well be regarded as a success and with the experience already gained, next year's conferences ought to be much more valuable.

RECENT AND PENDING MILK LEGISLATION

by

FREDERIC P. GORHAM

Professor of Bacteriology, Brown University

It has been demonstrated again and again that milk not infrequently is a vehicle for carrying infection. Perhaps the dangers from this source have at times been exaggerated, and perhaps milk infection when compared with other modes of infection may be of minor importance, nevertheless we are in duty bound to encourage any movement which will lead to the decrease or elimination of milk-borne disease.

Milk-borne diseases may be divided into two groups, first those that have their origin in the

cow, and second those that come from human contamination of the milk.

Of the diseases that come from the cow tuberculosis is by far the most important. It has been amply demonstrated that a very considerable proportion of our dairy cattle are suffering from this disease. This condition is not peculiar to Rhode Island but exists the country over. It has also been demonstrated that the milk from tubercular cows may contain the living, virulent germs of tuberculosis. It is true that it is the bovine type of the disease that affects the cows, but it is also true that a large proportion of the cases of tuberculosis in children, cases of gland, bone, joint, intestinal tuberculosis, and tubercular meningitis, are also due to germs of the bovine type. The conclusion is obvious that these children contract the disease through the milk from tubercular cows.

The United States Department of Agriculture, looking at this problem not so much from the public health point of view, as from the standpoint of the elimination of economic losses caused by the disease to the farmers engaged in raising cattle and marketing dairy products, some years ago inaugurated the Tuberculosis-free Accredited Herd plan of freeing herds, areas, counties, and states from this disease. This nation-wide drive has progressed with remarkable rapidity. Over ten million cattle are now under supervision by the federal authorities. This plan involves the co-operation of the several states and the federal government, each bearing a certain share of the losses sustained by those who submit their herds to supervision. Connecticut last year appropriated \$200,000, New Hampshire will spend \$300,000 this year and next, Vermont will spend \$200,000 this year and next, New York and Pennsylvania are spending millions for the purpose of eliminating tuberculosis from their cattle by this plan. The amounts spent by the states will be supplemented by federal funds. The federal government appropriated \$3,500,000 last year for this purpose.

In Rhode Island in 1922 there were fourteen tuberculosis-free herds under federal and state supervision, and two of these were supplying milk to the Providence market. In 1924 there were 59 herds under supervision and seven were supplying milk to Providence. At the present time there are 132 herds in Rhode Island and 58 of them are

supplying milk to Providence. In addition there are 14 herds in Massachusetts under supervision which supply milk to Providence. This makes a total of 72 herds free from tuberculosis supplying milk to Providence.

This very large increase in the last few months was due to the passage of a rule by the Board of Aldermen of Providence that after January 1, 1926, all raw milk sold in Providence must come from tuberculosis-free herds which are under federal and state supervision.

The second group of milk-borne diseases are those that are caused by human contamination of the milk. Epidemics of typhoid fever, scarlet fever, septic sore throat, and diphtheria have frequently been traced to infected milk. Milk handlers who carry the germs of these diseases on their hands, or in their noses and throats, are the cause of the infection of the milk. No amount of federal or state supervision of the cattle, nor medical inspection of the milk handlers will suffice always to protect against such infection. The only real safeguard is proper pasteurization of the milk. It has been definitely proven that pasteurization when properly done will surely destroy the germs of tuberculosis as well as the germs of diseases of human origin. It is true the milk may be infected after pasteurization, but at any rate pasteurization will remove the greater part of the danger from this source, and when pasteurization in the final container is perfected, it will eliminate all of it. At the same time pasteurization will not alter the appearance, taste, or food value of the milk when properly done. Certain of the vitamins may be destroyed by pasteurization, but they are easily supplied in the diet of babies and children by orange or other fruit or vegetable juices.

Because of the recognized value of pasteurization in the elimination of human infection of the milk, as well as the dangers from tubercular cows, the Board of Aldermen of the City of Providence ruled that after January 1, 1926, all milk other than milk from herds under federal and state supervision shall be properly pasteurized. The City of Newport has required for some years that all milk sold in Newport shall be certified milk or shall be properly pasteurized.

There is a growing tendency on the part of health authorities to require that all milk be

pasteurized. Tuberculosis-free herds protect against tuberculosis but not against human infection. Pasteurized milk protects against both. Last year nearly 70 per cent. of the milk sold in Providence was pasteurized. This year the proportion will be nearer 90 per cent. It is above 90 per cent. in most large cities.

The protection of the health of the people of the entire state is just as important as the protection of the health of the people of Providence and Newport. We therefore urge that the present General Assembly make a sufficient appropriation to reimburse those dairymen who have during the past year, without state or federal aid, because of the small state appropriation available, submitted their herds to federal supervision, and also sufficient to finance a comprehensive plan looking toward the ultimate elimination of all tubercular cattle from the entire state.

And also we urge the passage of some one of the bills now before the legislature, or some similar bill, which will require that all milk be graded and labelled, and that all raw milk shall come from herds of cows under federal and state supervision, and that all other milk shall be pasteurized. Proper labelling of the different grades of milk is necessary for the protection of the consumer, and also to prevent the use of special labels indicating a superior quality of the milk, when perhaps the superior quality is only in the label or the price. Such laws will be in the interest of both the producer and the consumer of milk.

SOCIETIES

PROVIDENCE MEDICAL ASSOCIATION

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. Albert H. Miller, Monday evening, December 7, 1925, at 8:50 o'clock.

The records of the last meeting were read and approved.

An invitation to attend the next meeting of the R. I. Ophthalmological and Otological Society was read.

Dr. George Mathews read the report of the committee on the duties and personnel of a medical milk commission.

Personnel of the Medical Milk Commission will be Dr. W. P. Buffum, Jr., as chairman, Drs. W. H. Jordan, Morris Adelman, R. C. Bates and A. R. Newsam. Duties will be to receive petitions to produce a certified milk, to designate a sanitary inspector, a veterinary for cows, a physician to examine the employees of the farm and an analyst to make bacterial counts and contents of elements of milk.

This was approved and ordered placed on file. The Standing Committee having approved the

applications for membership of the following the Secretary was instructed to cast one ballot for their election: Elizabeth L. Martin, Florian G. Ruest, Paul F. Thompson, Benjamin S. Sharpe.

In accordance with Article 1, Section 6, of the By-Laws, the Standing Committee presented the following nominations for officers and committees for the year 1926.

For President—Roland Hammond, M.D.

For Vice-President—Henry J. Hoye, M.D.

For Secretary—Peter Pineo Chase, M.D.

For Treasurer—Charles F. Deacon, M.D.

For Members of the Standing Committee for five years—Albert H. Miller, M.D.

For Trustee of the Rhode Island Medical Library for one year—Dennett L. Richardson, M.D.

For Reading Room Committee—George S. Mathews, M.D., Elihu Wing, M.D., Herman C. Pitts, M.D.

For Delegates to the House of Delegates of the Rhode Island Medical Society—H. G. Partridge, M.D., A. H. Ruggles, M.D., A. M. Burgess, M.D., F. V. Hussey, M.D., W. F. Flanagan, M.D., M. B. Milan, M.D., H. B. Sanborn, M.D., L. C. Kingman, M.D., E. S. Cameron, M.D., W. H. Higgins, M.D., A. J. McLoughlin, M.D., P. P. Chase, M.D., F. E. McEvoy, M.D., A. Corvese, M.D., M. Adelman, M.D., P. C. Cook, M.D., C. W. Skelton, M.D.,

Dr. Elihu S. Wing read the first paper of the evening, on pneumonia with special reference to treatment. The incidence of this disease does not diminish and the death rate has changed little in spite of scientific work. After a short talk on the four groups of pneumococci he showed curves of temp. white count and blood cultures and discussed its treatment.

His conclusions were: The laboratory should be used. The patient receive supportive treatment, rest and quiet, plenty of fluids, attention to bowels and chronic alcoholics should get alcohol. Stimulants should be limited. Digitalis should be given early and venesection when indicated. Diathermy seems of value in relieving symptoms at least. Serum is of value only in type one.

The paper was discussed by Drs. Wells, Mowry, Mathews, De Wolf, White and Wing.

Prof. Philip H. Mitchell of Brown University read a paper on "Some New Researches on Blood Sugar." The report dealt with newer researches on the nature of blood sugar, especially with work that has led to the theory that insulin reaching in the body with a substance that has been found in muscle changes glucose into some hitherto unrecognized form.

Dr. Skelton read a poem. The meeting adjourned at 10:45 A. M. Attendance 69. Collation was served.

Respectfully submitted

PETER PINEO CHASE

Secretary

The annual meeting of the Providence Medical Association was called to order by the President, Dr. Albert H. Miller, Monday evening, January 4, 1926, at 8:48 o'clock.

The records of the last meeting were read and approved.

The reports of the Secretary, Treasurer, Standing Committee and Reading Room Committee were read, accepted and ordered placed on file.

The President's annual address by Dr. Miller was on "Ideals and Ethics."

At this, the 76th annual meeting, the Association is found to be successful and carrying out the objects for which it was formed. The "advancement of sound medical science" was handicapped only by our lack of time. As the local representative of the American Medical Association, the ethics were kept on a high plane, evidenced by the great medical reforms this latter had achieved throughout the country.

He warned against the submergence of the general practitioner by the specialist and showed how the school of homeopathy had gradually lost its identity and merged into the generally accepted field of scientific medicine. In conclusion he spoke kind words for his associates in the conduct of the Association.

The Secretary was instructed to cast one ballot for the entire list of officers.

Dr. Hammond was escorted to the chair by Drs. Cutts and Van Benschoten. After a few remarks he appointed the following committees:

Collation—Wilfred Pickles, Ralph DiLeone.

Publicity—Charles A. McDonald, Joseph F. Hawkins, Robert C. Robinson.

A letter from Mrs. Swarts was read in appreciation of the memorial on Dr. Swarts. Also an invitation from the St. Camillus Guild for Catholic Nurses to a lecture on Psycho-Analysis by Dr. James J. Walsh.

It was voted to give \$175.00 to the R. I. Medical Society Library for the purchase of Journals and \$250.00 for binding Journals. Also \$450.00 to the Society for the use of the building. It was voted to make the dues \$5.00 for the ensuing year.

Dr. Reuben C. Bates read a paper on Observations of the Health of Children in an Institution. This was a survey of the children in St. Mary's Orphanage with their routine of life and showed an apparent relationship between undernourishment and signs of tuberculosis.

Dr. Buffum opened the discussion and was followed by Drs. W. H. Jordan, Pinckney and Kelley.

Dr. Frederick N. Brown paid a tribute to the retiring President.

Dr. White read a poem. Meeting adjourned at 10:15 P. M. Attendance 54. Collation was served.

Respectfully submitted

PETER PINEO CHASE

Secretary

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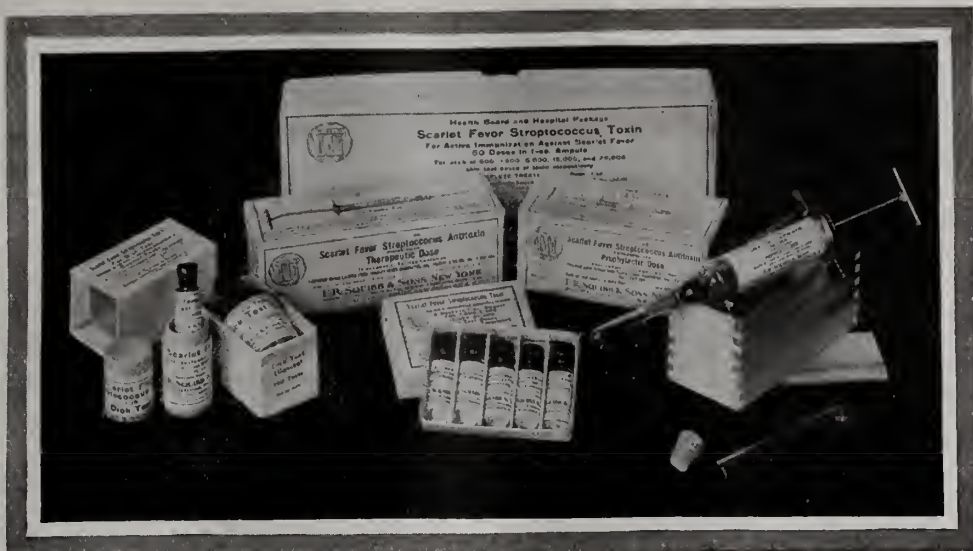
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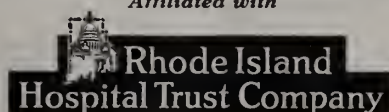
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ORIGINAL ARTICLES

THE X-RAY TREATMENT OF SUPERFICIAL PYOGENIC INFECTIONS.*

By

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PROVIDENCE, R. I.

I am limiting this paper to a consideration of the field of application of the X-rays in the treatment of such acute pyogenic infections as have hitherto been considered to be of chiefly surgical importance. This group includes carbuncles, furuncles, paronychias, phlegmon, cellulitis, and erysipelas.

During the past two or three years there seems to have been a renewal of radiological interest in this subject, after a rather long period of quiescence. The earliest record of the use of X-rays in these infections is the report of Pfahler in 1905 on the cure of a case of paronychia of many years' standing. In the twenty years that have passed, a number of papers have appeared on various aspects of this treatment and scattered roentgenologists in various parts of the world have been using the method. In this country, interest in the method has been revived particularly by the recent publications of Hodges. In Germany, within the past year, the surgeons have become especially interested in this treatment, and in many large clinics it has been thoroughly established as a most valuable adjunct to the other methods of therapy.

In spite of the fact that the radiologists of the world have been familiar with this method of treatment for many years, it does not seem to have penetrated very far into the armamentarium of the general medical public. I have not been able to find a single text-book of surgery in either English, French, or German, which even mentions this method in its discussion of the acute superficial pyogenic diseases. Even dermatologists with some

understanding of X-ray treatment do not seem to have grasped the full significance of the agent, judging from their literature.

Pordes, in a recent paper before the German roentgenologists, gives several reasons for the neglect of this method of treatment, even by radiologists. First of all, there was the old fear of dermatitis, the mis-named "X-ray burns." It was thought that if an inflammatory process were present the X-rays would only stimulate this process and make it worse. It was not considered logical to attempt to treat an inflammation by producing another worse type of inflammation. Now, however, we know that X-ray dermatitis is a condition that comes on as a late result of the exposure to large doses of the rays. The clinical effects of X-ray treatment of inflammatory disease are accomplished within two or three days, as a rule, and the entire disease is often cured before the time for the appearance of any skin reaction. Besides, modern technique uses only small amounts of the rays, with high filtration. A second reason for the neglect of this treatment has been the over-emphasis placed on the X-ray treatment of malignancy. For a long time the medical literature has been filled with various methods of measurement, dosage, etc., as applied to the deep treatment of malignant disease. Much of the research work has been purely along the lines of cancer investigation. In consequence, the general medical profession has been so thoroughly impressed with the value of radiation in the treatment of malignancy that it has largely forgotten that there is a much wider and more satisfactory field of application in the treatment of benign diseases, particularly these pyogenic infections. In fact, this field affords opportunity for real cures, whereas with malignancy we know that the best that can be offered in most instances is arrest or palliation.

My own interest in this field was stirred by hearing the classical paper of Dunham in 1916 on the X-ray treatment of carbuncles. He reported the results of this treatment in 67 cases. His results and especially his observations with regard to the varying clinical effects of the rays in this dis-

*Read before the Providence Medical Association, November 2, 1925.

ease are essentially the same as those now reported by our most recent observers. For a number of years I saw only a few scattering cases of pyogenic infection which came for X-ray treatment. It was very difficult to overcome the surgical bias of many years' standing. The article written by Hodges early in 1924 restimulated my interest and enthusiasm, and I began to look for cases of this sort to treat. Through the help of Dr. P. F. Butler of the X-ray department in the Boston City Hospital, I was enabled to see and treat a large number and variety of these diseases with most gratifying results. During the past fourteen months I have treated over 40 cases of true carbuncle, of which about two-thirds were on the neck; about 30 cases of paronychia; numerous boils and furuncles; as well as scattering cases of superficial phlegmon of the hand, arm or leg, deep and superficial cervical abscesses, and axillary abscesses.

With *carbuncles*, the clinical response to radiation is usually most satisfactory. Within 12 to 24 hours the pain will be relieved or disappear, the fever diminish, and the local appearance change materially. Two general types of response are noted. If treated early enough, the infection may be aborted completely. The lesion just shrinks up and disappears. If the infection has progressed further, the radiation will produce a definite breaking-down process. The entire lesion may be transformed into one large abscess. This may be evacuated by either a very small incision or by puncture with a large needle. As soon as the pus, which is in a liquefied state, has been drained, the lesion heals with great rapidity. In other cases the indurated lesion may localize in several areas. By superficial sloughing of the skin several small sinuses will be produced, through which the liquid pus will gradually drain. Very often no surgery will be needed. As a rule, only a single treatment is required, particularly in early cases. In older cases, especially those which have had surgery first, several more treatments may be necessary.

In the neck cases particularly, some type of surgery is often needed as an adjunct. If the case has been old and neglected when first seen, it may be necessary after radiation to open the wound and spread the layers of fascia and muscle without performing any radical excision. Often this

is all that is necessary to promote adequate drainage and prompt healing. In rare cases that have been seen late, the entire area treated may break down superficially and require removal of the sloughing mass in order to get rid of a possible source of septic absorption. Later, however, the rays will promote granulation, and the resulting convalescence and scar will be much better than without the rays.

In the cases of carbuncles about the face, the results have been especially good. For years these infections have been a bugbear to the surgeon. If operated upon, the mortality was high. Expectant treatment led to many cases of septicaemia because of the rich lymphatic supply around the face. In the fairly considerable number of these facial cases that I have treated, there have been only two deaths. Both of these patients were thoroughly septic when first seen, and one had erysipelas as a complication. In all the other cases, the lesions followed the usual course and were cured as outlined above. Most of these facial cases were healed with the X-rays alone, and no adjunct surgery. One spectacular example of this type was a woman of middle age who came into the hospital with an extensive carbuncle of the chin. The area of induration was about three inches in diameter, raised, bright-red, and tender. The lower and upper lips were slightly reddened and there was oedema of the face reaching almost to the level of the eyes. There was a temperature of 103 F. on entrance, and general signs of a moderately severe toxæmia. The patient was given an X-ray treatment very soon after admission. Within 24 hours the temperature was normal. The oedema of the face and lips had disappeared; the pain was gone. On the second day after the treatment the lesion was thoroughly localized to the chin, and there were several small openings through which a liquid pus was oozing. The lesion quickly receded, and by the sixth day the patient was ready for discharge. Under ordinary treatment this patient would have run a very grave risk of dying from septicaemia.

The duration of treatment of carbuncles generally is lessened by the X-rays to between one-third and one-half of the time required by the usual purely surgical measures. In the older cases, particularly on the back of the neck, where considerable surgery has been required, the time of

hospitalization may not be less, but the ultimate cosmetic result is much better, and the former mortality is largely eliminated. One patient demonstrated this difference in methods very strikingly. He was a man of fifty, a policeman, who had had a carbuncle on the back of his neck treated at the same hospital four years before. The usual radical operation had been performed. He was in the hospital twelve days, and required a number of weeks' attendance later as an out-patient. At the time I saw him he showed a very large, stiff, deforming scar. This spring he had another carbuncle on the opposite side of his neck. He came in at a rather early stage and was treated by us as an ambulant entirely. After one X-ray treatment the lesion broke down and discharged spontaneously through several openings. In less than a week it was entirely healed. There was a small amount of local induration which disappeared following another small treatment with X-rays. Now there is only a very tiny smooth scar to be seen. The patient suffered very little inconvenience, and did not have to remain away from his work for any real length of time.

The cosmetic result following radiation of carbuncles is much better than that with surgery alone. The traumatism which occurs in the radical surgical procedure is eliminated. This diminishes the amount of tissue destruction and results in a scar which is much smaller and softer. Often there is no scar visible at all. The danger of later keloid formation or malignant degeneration is thus greatly lessened.

Many of the carbuncles I treated were in patients with *diabetes*. Here, of course, surgical procedures require careful preliminary medical treatment, and even then are more or less hazardous. The X-ray treatment is especially advantageous in these cases, as it does not impose any extra risks, and very often suffices without any other therapeutic measures.

In the treatment of carbuncles generally I feel that the best method of procedure is to apply the X-rays first and then allow the future course to be governed by the character of the response to radiation. Many of the cases, particularly the facial ones, will require no surgery at all. The lesions on the back of the neck may need some type of surgery, usually of a minor character. The

days of the old routine crucial incision, or extensive dissection, are, I believe, entirely over, except in rare instances, and these usually in old cases.

In *furuncles*, which are, of course, the same type of lesion only restrictively to a single hair-follicle, the same conditions exist. Some authors feel that the treatment is not indicated until the furuncle is ripe. Others believe that better results are obtained if radiation is applied early, while the lesion is still closed. Under these circumstances, the local immunizing mechanism, which will be described later, has a better chance to progress to completion. I have had cases of *furunculosis* in which I am satisfied that lesions in the early stages were completely aborted by the X-rays. The absence of traumatism is an important element in the radiation treatment of these localized lesions. The integrity of the pyogenic membrane is not damaged, as it is apt to be with even the most careful of operations. In this way the danger of sepsis is lessened. Those lesions which are well-developed when radiated usually break down into a single sac of liquid pus. When this is opened the liquid character of the spurting pus is always startling to the surgeon who sees it for the first time. There is no resemblance to the compact "core" which he usually expects when opening a boil. The character of the incision which is made at this stage will often determine the type of the resulting scar. The incision should be as small as possible. A small circular incision is as efficient as a straight one in dealing with this liquid pus, and will usually heal with much less scar. In the after-treatment it is not necessary or desirable to use flaxseed or other poultices. Ordinary dry dressings are sufficient.

Although not strictly a part of this paper, I might mention that *chronic furunculosis* offers a very fertile field for the use of X-rays. In fact, Schreus believes that this treatment is much more efficacious than vaccines. With the latter repeated injections are necessary, and recurrences take place which become gradually lighter. With X-rays it is only necessary to treat each lesion once as a rule. In many cases, as a result of the general immunization, treatment of a single furuncle will cause the recession of others which were not in the field of exposure.

Paronychias and *felons* afford another very useful field of application for the rays. The cases

I have treated have ranged from very fresh infections to some of months' standing, and one of several years' duration. The old cases of paronychia are apt to be complicated with parasites of the ring-worm family, requiring other additional treatment. Some of my most satisfactory cases have been those where the lesion had been opened and perhaps the nail removed, yet there still remained a raised zone of tender, chronic inflammatory tissue. This zone had a tendency to remain as it was without change. A single small dose of X-rays was sufficient in some cases to start a process of resolution and gradual cure. Even in cases that have advanced to partial bone involvement, the necessity of amputation may be avoided by arresting the infection.

This type of treatment has been warmly welcomed by the surgical internes. Needle infections and infections from dirty dressings do not have the same terrors as before. I have been able to abort a number of these deep finger infections by a single treatment. On the other hand, small superficial follicles which look as if they ought to melt away under the rays will often go on to liquefaction and require a small incision. The healing, however, will be very rapid, and the surgeon will be able to scrub and operate again with a minimum loss of time.

In treating paronychias and deep finger infections the usual surgical methods must still be used when indicated. Collections of pus under the cuticle must be drained. At times the nail may have to be removed to promote drainage or healing. If bone necrosis is present, amputation may be necessary. Ordinary surgical judgment must still be exercised. Here as in other fields the X-ray treatment is not intended to be a substitute for surgical judgment. It is merely a very valuable aid to the other approved surgical methods.

Superficial and deep *phlegmon* and *cellulitis* constitute another group in which X-ray treatment is useful. The results are particularly striking in cases with extensive brawny induration where multiple incisions have been made, but without the discharge of pus. Under radiation these cases promptly localize in one or more centers, which can be opened or which may drain through the incisions already made. In palmar infections where tendon-sheath involvement is feared, the treatment will often succeed in maintaining useful-

ness in a hand whose function might otherwise be largely impaired. The lymphangitis which often accompanies these phlegmons, particularly of the hand, will disappear after radiation, often before the local lesion has been visibly affected. The secondary lymphnode enlargement that accompanies many of these infections will usually disappear together with the streaks of lymphangitis, merely from radiation of the primary infection. Rarely it may be necessary to treat the nodes themselves. These will either disappear or go through the same process of liquefaction as the primary area of infection.

I have had several cases of *deep cervical abscess* in which the rays have been used with considerable benefit. The prompt relief of the pain was the most significant feature of the treatment. In one case of true "Ludwig's angina" the drainage after operation was not very free, and there was considerable pain. A single radiation was sufficient to start free drainage and initiate the healing process. In *peri-tonsillar abscess* I have used the treatment twice with success. Here it is valuable particularly in the cases where there is no localization of pus, but merely a general boggiess and swelling, and an incision simply draws blood. The rays will promptly break down this inflammatory infiltrate, relieve the pain, promote drainage, and hasten the healing.

Axillary abscess offers another useful field. Here in particular the cases of recurring abscess formation following furunculosis have always been difficult problems for ordinary surgical handling. For these cases as a rule the only curative remedy left is an extensive resection of the gland-bearing region with an eventual plastic operation, resulting often in deformity and disability. Heidenhain has used the rays frequently in these extensive cases, and reports that very little radiation is necessary and recurrences are very rare.

Erysipelas is the last condition that I shall discuss tonight. A very large amount of radiologic literature has appeared regarding the treatment of this disease, and the results seem to be very striking when applied to suitable cases. The X-ray treatment is simpler, cleaner, faster, and less dangerous than other methods. In the great majority of the cases reported there was a definite fall of temperature by crisis after one or two treatments. This was coincident with an improvement in the

local and general conditions. My own experience with this disease has been rather limited. Several of my cases of facial carbuncle were accompanied by beginning erysipelas. This disappeared together with the deeper infection. The only full-blown cases that I have handled were very advanced ones in which it was difficult to judge whether the improvement was due to the radiation or whether the disease had already reached its turning point. The cases most suitable for treatment are the early ones where there has been very little extension from the primary focus. In this group the treatment would seem to be a very useful and simple one.

The explanation of the clinical phenomena which I have described offers a very interesting field for study. It is probable that the rays have a double effect, partly local and partly general. We know at present from a variety of scientific studies that the local effect of X-rays is exclusively a cell-depressing action. The rays produce either paralysis and limitation of function, or coagulation and destruction of the cells, depending upon the dose and upon the sensibility of the cells concerned. In the present instance, the most sensitive cells in the regions radiated are the leucocytes and in particular the lymphocytes. The destruction and dissolution of these elements take place within the first few hours after radiation, which is the time when the first relief of pain is manifest clinically. This is due probably to the relief of tension following the breaking down of the leucocytic infiltrate. Further tissue lysis is then limited by the fact that the phagocytes have been largely destroyed. A process of auto-immunization is set in action by the liberation of anti-bodies when the leucocytes are dissolved. This concept was brought out some time ago by Iselin in connection with the studies of immunizing processes existing in the radiation of tuberculous tissues. Heidenhain has also shown that many of the bacterial toxins are probably broken down as a result of altered physico-chemical states following the radiation.

This local immunizing mechanism helps in the production of the general lessening of toxæmia as manifested by the fall of temperature and improvement in the general condition. In cases which are radiated some time before the lesions are opened, there is ample opportunity given for the collection of these anti-bodies and the pro-

duction of an immunity. This explains the better results with the radiation of closed lesions, which has been emphasized by so many of the observers.

In addition, there is undoubtedly a general immunizing mechanism set in action by the rays. Schrader noted with his erysipelas cases that in widespread infections radiation of one area would often result in the regression of an area that had not been in the field of treatment. Similar experiences were reported by Schreus in the treatment of furuncles. Heidenhain and Fried have made very careful serological studies in a large number of their cases. They found a very definite and constant increase in the bactericidal substances present in the blood after radiation, as compared with the condition before. In fifty-five of their cases pus from the lesions was found to be sterile after radiation, particularly when the pus developed after the rays had been applied. From their experiments they were convinced that the production of the bactericidal substances came largely from the exposure to the rays of a large cross-section of circulating blood. In addition, of course, some of these anti-bodies have their origin in the original locus of infection.

Without being concerned about the exact ultimate mechanism, there is no doubt that radiation initiates both local and general immunizing processes, which are of the most valuable help in hastening the clinical cure. In the future it will probably be shown that the immunizing mechanism after radiation is variable, depending upon the character of the infection as well as its location. We already know that in some instances the local mechanism is more important, while in others the general immunity reaction seems more active.

With regard to the technique of this treatment I shall not go into any details, as I am not addressing an audience of radiologists. It is sufficient to state that small doses of well-filtered rays are used. It is necessary to have apparatus of sufficient power to give an adequate dosage through 4mm. of aluminum for the smaller lesions and through 1-2mm. of copper for the more extensive and deeper seated processes.

Summary

The application of X-rays to superficial pyogenic infections has been known for many years, but the value of the method has not penetrated

the general medical public until recently. The neglect of the treatment has been due partly to the old fear of X-ray dermatitis and partly to the excessive emphasis of recent years on the X-ray therapy of malignancy.

The X-ray treatment is applicable to cases of carbuncle, furuncle, paronychia, phlegmon with or without lymphangitis, cellulitis, axillary abscess, erysipelas, etc.

Clinically the treatment is followed by very prompt lessening or disappearance of pain, diminution in the local oedema and swelling, and gradual subsidence of the infection. If treated early enough, complete abortion of the disease may be obtained. Infectious processes of longer standing may be converted into one enormous abscess cavity which may perforate spontaneously, or may require a slight incision or puncture. In other types of infection, with the disappearance of the surface oedema, one or more centers of localization will be produced, which also may perforate or may require surgical evacuation. The effects of treatment are always better when the abscess remains closed before radiation.

The best explanation of the effects of the rays is based upon the production of a local and general increase in immunity. The local effect is due largely to the action of the rays on the leucocytes, producing dissolution. The secondary production of anti-bodies locally and generally is also important.

ACUTE SINUSITIS.*

DR. FRANCIS B. SARGENT.

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Acute accessory sinusitis occurs as a complication of some form of rhinitis or nasopharyngitis. In health, air enters the accessory sinuses with every nasal inspiration. Ordinarily they are kept free from bacteria by the action of the ciliated epithelium lining them, which sweeps all foreign particles through their ostia into the nose. Infection occurs when pathological conditions of the nasal and sinus mucous membrane overcome this protective mechanism. The sinuses become involved either by direct extension of the nasal in-

fection or by having micro-organisms forced into the sinus by violent fits of coughing or sneezing.

Following acute epidemic respiratory infections such as influenza or grippe, we have epidemics of acute sinusitis of varying severity. The duration of the individual attack may be only a day or two or may extend over a period of weeks. The mucous membrane is greatly swollen in the acute process, a condition which may lead to chronic thickening of the sinus lining and predispose the patient to recurrences of sinusitis with every severe nasal infection.

Two general types of acute sinusitis are generally recognized; the non-suppurative, in which localized pain is the major symptom, and the suppurative, in which pain is accompanied by a profuse purulent discharge from the nostril on the affected side.

Diagnosis of the presence and location of sinus infection is made by the character and location of the pain, the presence of pus in the middle meatus of the nose, and by transillumination and X-ray.

The location of the pain in acute sinusitis varies considerably. Generally pain due to maxillary sinus disease may occur in the maxillary region, forehead and upper teeth. Frontal sinusitis is manifested by pain in the forehead, while ethmoiditis and sphenoiditis causes pain in the eyes, temporal region and occipital region. All manner of variation may occur.

In an acute purulent sinusitis, pus is present in the middle meatus of the side involved.

Transillumination is of great value in the diagnosis of acute antrum infection and of some value in frontal sinus infection. If further information is needed, X-ray of the sinuses will help.

Treatment of acute sinusitis is both local and general. In the office we usually shrink the middle turbinate region with a cocaine-adrenalin solution, freeing the natural opening as much as possible. In suppurative cases, we usually wash the nose out with an alkaline solution and apply suction to the affected side. The smallest amount of suction that will withdraw pus from the affected sinus into the nose is most efficacious and without risk. After the purulent contents of the sinus have been evacuated, it is possible to force antiseptic solutions such as silvol or one of the analine dyes into the sinuses. This procedure,

*Read before the Providence Medical Association, October 5, 1925.

however, may flood the middle ear through the Eustachian tube and even set up an otitis media.

At home the patient can help his condition by using some astringent mixture in the nose to keep his ostia clear, and by douching the nose with a warm alkaline solution. However, he should never blow the nose hard after the use of nasal douche. General treatment consists of free catharsis, light diet and forcing of fluids. The salicylates seem most effective in relieving the pain.

Almost never is operation necessary or advisable in an acute attack.

The organisms most commonly found in infected sinuses differ in the reports of different observers. Most reports available deal with chronic rather than acute sinusitis.

The pneumococcus, influenza bacillus, staphylococcus aureus and albus, and the streptococcus are the most common organisms reported, but many others have been found either in pure or mixed culture.

Following is a report of a series of cases of acute purulent sinusitis occurring in Providence last winter, with their bacteriology. There appeared to be three so-called "flue" epidemics in the period from October to April, the first occurring in October, the second in January, and the third in March and April. Each of these left in its wake a certain number of sinus complications. During this period fifty-four cases of acute purulent sinusitis were encountered. As nearly as could be determined, the purulent process developed in the average about six days after the onset of the influenza attack and the average duration of the sinus infection was nine days. The severe pain in nearly every instance subsided a few days before the cessation of the nasal discharge. These cases could be classified clinically as follows: Antrum infections, 32; fronto-ethmoidal infections, 18; both types present, 6. In two cases both antra were infected at the same time.

Cultures were taken from the pus that was drawn from the infected sinuses into the middle meatus by suction and were incubated twenty-four hours on dextrose agar and blood serum. Streptococci were grown out on blood agar in a petri dish.

In a series of fifty-four cases pure cultures were obtained in forty-four and mixed cultures in ten cases.

As shown in the accompanying chart, the most common organism found in October was the type III. pneumococcus, in mid-winter the staphylococcus, and in March and April, the streptococcus and staphylococcus. No case was included in the series which did not show abundant pus in the middle meatus following suction or in which symptoms had been present for more than two weeks.

	<i>Staph. Staph. Number</i>				
	<i>Pneumo.</i>	<i>Strep.</i>	<i>Aureus.</i>	<i>Albus</i>	<i>Cases</i>
October	6	0	2	0	6
November	1	1	2	0	3
December	0	1	2	0	3
January	2	2	3	1	7
February	3	2	4	3	10
March	0	4	6	6	16
April	0	5	4	2	4

The type of organism present seemed to make no difference in prognosis, and none of these cases went on to chronic sinusitis. They were all treated by the usual astringents, suction, and the salicylates internally.

As stated above, these cases of acute sinusitis followed closely on the so-called grippe epidemics of October, January and March. Their bacteriological study was designed to throw some light on the etiology of these epidemics. With the likelihood of prompt secondary infection in an organ like the nose and accessory sinuses, it is very difficult to pin the etiology of an acute nasal infection on any given organism. Still it would seem that the epidemic in October might well have been due to the type III. pneumococcus.

INVERSION OF THE UTERUS*

REPORT OF CASE

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The infrequency of inversion of the uterus attaches to the condition sufficient interest to justify recording all cases observed. Some writers state that it occurs as often as once in 10,000 deliveries while others give it as not more than once in 400,000.

*Reported to the Providence Medical Association, November 2, 1925.

It would appear that an unusual degree of relaxation of the uterine walls is the most likely predisposing cause while the most frequent exciting cause has undoubtedly been improper conduct of the third stage of labor either by pressure on the fundus during a state of relaxation of the uterus, in such a manner as to cause its indentation, or by traction on the cord or a combination of both. An adherent placenta implanted near the fundus might easily be an additional predisposing factor. Records show, however, that several cases have occurred spontaneously following what appeared to have been a normal placental stage.

REPORT OF CASE

The patient was a para iii, 36 years old. There was no history of previous illness or operation except delivery of her first child by forceps four and one-half years ago. Her second child was delivered normally. The pregnancy and puerperium were normal in each instance. The third pregnancy was uneventful to term and labor began at 7 P. M., August 7, 1925. After three and one-half hours of normal labor a male child weighing 7 lbs. 14 oz., was delivered spontaneously. Gas was administered for partial analgesia during the latter part of the second stage. After birth of the child the placenta did not separate and several unsuccessful attempts to express it were made during the next hour. Meanwhile there was considerable bleeding which affected appreciably the rate and character of the pulse. A final attempt at expression from above combined with traction on the cord brought about a complete inversion of the uterus. The placenta, still firmly adherent, was peeled from the fundus and posterior wall and the inverted uterus pushed into the vagina. An attempt was then made to reduce the inversion without anesthesia. This caused severe pain and, as bleeding was profuse and the patient's condition extremely critical, further efforts at reduction were stopped and the vagina packed tightly with gauze. An intravenous infusion of 300 c. c. of salt solution was then given. By the time this was completed, blood was oozing through the vaginal pack and the slight improvement in the pulse noticed during the infusion, was of short duration. Immediate consultation was held and it was decided to administer an anesthetic and again

attempt reduction. This was done at 1 A. M. and after some difficulty the inversion was reduced one hour and 20 minutes after it occurred. The lower uterine segment and vagina were packed with gauze. Another intravenous infusion of 700 c. c. of salt solution was then given and was followed by distinct improvement in the pulse for about two hours. The patient was kept in the Trendelenberg position and morphine administered, but her condition became progressively worse although there was no further bleeding from the vagina. Adrenalin, caffeine, camphor and digitan were resorted to without apparent effect. At 6 A. M., four hours after the last infusion, another 500 c. c. of saline was given by hypodermoclysis but had no visible effect. The systolic blood pressure at this time was 50 and the heart beats counted at the apex from 160 to 170 per minute. It seemed then as if recovery could hardly be hoped for. However a suitable donor was obtained and at 11 A. M. the patient was transfused with 500 c. c. of blood by the citrate method. Little change was apparent for a time, but after two hours there was noticeable improvement which continued during the afternoon and night. The following morning the pulse was 120 and of good character. The temperature was 102 degrees, but gradually returned to normal where it remained after the thirteenth day. The patient left the hospital on the twenty-second day after delivery and pelvic examination at that time was in every way normal. Another examination seven weeks after delivery showed the uterus to be perfectly involuted and in excellent position and the adnexa normal.

This case viewed in retrospect teaches some important truths. It impresses upon us anew in a most forceful manner the possibility of the occurrence of this unusual condition; it shows us its gravity and how tragic the consequences may be, due to hemorrhage and shock, as well as the almost miraculous effect at times of a blood transfusion; but more than anything else, it proves that the fundamental rules laid down for the conduct of the third stage of labor cannot safely be ignored, as was deliberately done in this case in the vain hope that the placenta might be obtained without resorting to manual removal.

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RHODE ISLAND MEDICAL SOCIETY

Meets the first Thursday in September, December, March and June

HALSEY DEWOLF	<i>President</i>	Providence
H. G. PARTRIDGE	<i>1st Vice-President</i>	Providence
NORMAN M. MACLEOD	<i>2nd " "</i>	Newport
JAMES W. LEECH	<i>Secretary</i>	Providence
J. E. MOWRY	<i>Treasurer</i>	Providence

DISTRICT SOCIETIES

KENT

Meets the second Thursday in each month

G. HOUSTON	<i>President</i>	Arctic
C. S. CHRISTIE	<i>Secretary</i>	Riverpoint

NEWPORT

Meets the third Thursday in each month

WILLIAM S. SHERMAN	<i>President</i>	Newport
ALEXANDER C. SANFORD	<i>Secretary</i>	Newport

Section on Medicine—4th Tuesday in each month, Dr. Charles A. McDonald, Chairman; Dr. C. W. Skelton, Secretary and Treasurer.

R. I. Ophthalmological and Otolological Society—2d Thursday—October, December, February, April and Annual at call of President Dr. Jeffrey J. Walsh, President; Dr. Francis P. Sargent Secretary-Treasurer.

The R. I. Medico-Legal Society—Last Thursday—January, April, June and October. Frederick Rueckert, Esq., President; Dr. Jacob S. Kelley, Secretary-Treasurer.

PAWTUCKET

Meets the third Thursday in each month excepting July and August

H. A. MANCHESTER	<i>President</i>	Saylesville
ROBERT T. HENRY	<i>Secretary</i>	Pawtucket

PROVIDENCE

Meets the first Monday in each month excepting July, August and September

ROLAND HAMMOND	<i>President</i>	Providence
P. P. CHASE	<i>Secretary</i>	Providence

WASHINGTON

Meets the second Thursday in January, April, July and October

M. H. SCANLON	<i>President</i>	Westerly
WM. A. HILLARD	<i>Secretary</i>	Westerly

WOONSOCKET

Meets the second Thursday in each month excepting July and August

J. V. O'CONNOR	<i>President</i>	Woonsocket
J. M. MCCARTHY	<i>Secretary</i>	Woonsocket

EDITORIALS

WHAT IS THE HEALTH OF A COMMUNITY WORTH?

If a thing is worth doing, it is worth doing well. This old adage was never more applicable than now. If a Commissioner is decided upon to guard the community's health, it must be borne in mind that any man big enough for the job—a trained

sanitarian, enough of an engineer to understand sanitary construction and ventilation, of forceful administrative capacity and a recognized medical disciplinarian—will hardly be lured into the chair of Commissioner of Health by a salary that is not commensurate with the duties and responsibilities of the office.

To hold an adverse attitude and appoint a lesser man would be a betrayal of a State's trust. We are not seeking merely a change but a betterment.

PUBLIC HEALTH A POLITICAL FOOTBALL.

At the time of going to press, the act relating to a Commissioner of Health had not been passed. The good results which it was hoped would follow from the passage of this act will be wholly lost if the commissioner be not a scientifically trained man of the highest type. In the Society's draft of the act the salary was placed at seventy-five hundred dollars in order to attract such men.

When the committee deleted that provision they made it reasonably certain that no high-grade men would consider the position and political trading has been covertly prophesied.

Almost immediately one candidate started a vigorous campaign with the usual political appurtenances of newspaper publicity, endorsement by local organizations, and the circulation of form letters of endorsement to be signed and sent to the Speaker of the House.

It has been freely predicted at the State House that such a man has a good chance for the office, but not entirely because of any ability or especial fitness for this important work. There is a current conviction that this particular candidate has a near relative that is closely associated with a certain "power" at the State House, credited with having such a compelling prestige that a candidate bearing his "hall-mark" has more than a chance of winning. If such methods obtain it seems a bootless task to try to better the public health by legislation. We hope that by the time these words are in print our lawmakers will have refused to jeopardize the health of the state for the sake of paying the political debts of any party leader.

FUTURE ANESTHETISTS.

An illustrious visitor studied the anesthetic situation in this country and decided that "the nurses can give anesthetics just as well as the doctors." True, some of the nurses give anesthetics better than the doctors, and in an increasing number of hospitals nurses are employed for this work to the entire exclusion of medical graduates. But this practice does not solve the problem of satisfactory anesthesia for surgical work in the future. The foundation on which anesthesia by nurses rests is

knowledge of anesthesia by the surgeon or some other member of the surgical team. Under the present routine, there is no opportunity for any member of the surgical team to acquire this knowledge. Medical schools give no instruction in anesthesia, yet retain a Class A. rating. Institutions which remain on the list of hospitals providing a satisfactory internship turn out graduates who have never administered a single anesthetic. With regard to general anesthesia, these graduates have neither knowledge, experience, nor interest, and they are the surgeons of the future.

When the aim of some of our great surgical associations shall have been accomplished and anesthesia has been entirely turned over to nurses, after the last graduate anesthetist has passed away, where may then be obtained the knowledge and skill in anesthesia which the public will demand when the true conditions become generally known? Perhaps from England or from Canada, where instruction and training in the administration of general anesthetics are still features of the education in medical schools and hospitals.

THE MEDICAL LIBRARY.

There is, perhaps, no field of scientific endeavor in which experience plays so large and so vital a part as in the realm of medicine. Education, preliminary and medical, and professional training of high calibre are essential, but experience remains the most important single factor in the proper development of the medical man. The experience of any one of us, however, must of necessity be very limited, as it must also be subject to grave error, since we are dealing not with carefully controlled laboratory experiments, but with experiments of nature, with many variable and even unknown factors. Fortunately, we are not dependent upon our own limited experience entirely, as we have available the collected experience of thousands of medical men through long periods of years in the form of medical literature.

This literature divides itself naturally into periodicals and books, and it is the function of a medical library to collect and care for this material so that it may be immediately available for use when it is needed. The existence of several good indices to periodical medical literature makes this form of recorded experience easily accessible, and

therefore of great value. The books in any library, however, are of very little value unless a carefully compiled card catalogue makes them equally accessible. The recently inaugurated move to bring about such a cataloguing of our own library is deserving of hearty support, and should be pushed promptly to completion, as it would transform our collection of books into a valuable working library.

CLINICAL CONFERENCES

Dr. Richardson spoke before the Rhode Island Medical Society at its December meeting: "In Regard to Clinical Conferences."

Up to the present time I think the Conferences have been more or a less a success, but attendance should be encouraged.

I am pleased to present what figures I have of attendance, etc., up to the present time.

The total number matriculating, 160; of these men, about 103 were hospital staff physicians; 57 were not.

About 87 elected one or more courses and sent in \$10.00; 73 selected the single course.

Following is a list of the number of individuals electing, and the various courses:

	Number Electing
Course 1	104
Course 2	94
Course 3	55
Course 4	49
Course 5	39
Course 6	33

At the present time the Committee has received \$1225, of which \$199 has been spent. There will be further expenditures. Just how much, it is impossible to say. A bit of printing, of which I may have a copy today before the meeting is over, is yet to be paid. It is a booklet giving a chronological list of these clinics and where they are to be held. It will be very convenient for members to have for reference as to the dates, and places, etc. This will be some expense. Also, we are going to send out a postal card before the first of each week as a reminder of the coming clinics. Those matriculating consisted of the following physicians:

One hundred and fifteen from Providence; 9 from Pawtucket; 4 from Newport; 4 from Woonsocket; 3 from Westerly; 25 from other towns. Total, 160.

Figures on attendance:

Memorial Hospital.		
Nov. 2	25	Medical
Nov. 10	24	Surgical
Nov. 16	25	Medical
Nov. 18	12	Surgical
Nov. 24	9	Surgical
Nov. 30	9	Medical
Rhode Island.		
Nov. 6	40	Medical
Nov. 13	28	Medical
Nov. 20	26	Medical
Nov. 27	14	Medical
Dec. 2	10	Surgical
City Hospital.		
Nov. 10	18	Infectious
Nov. 17	9	Infectious
Nov. 24	15	Infectious
Dec. 2	12	Infectious
St. Joseph's.		
Nov. 4	18	Surgical
Nov. 11	19	Surgical
Nov. 18	10	Surgical
Nov. 25	8	Surgical
Westerly Hospital.		
Nov. 5	6	Medical
Nov. 19	7	Surgical
Newport.		

1 Clinic, no report at present time.

About money. We are going to have quite a lot of money left. I think you should know that whatever is left next spring will be at the disposal of this Society, as it has been deposited with the treasurer of the Rhode Island Medical Society. We ask for criticism and suggestions either now or at any later time, verbally or in writing, and undoubtedly next spring a circular will be sent out asking definitely your opinion of these clinics, and what suggestions you may have to offer. The men who will be called upon to give clinics next year will not, necessarily, be the same men as called upon this year. We want suggestions from all.

SOCIETIES

RHODE ISLAND MEDICAL SOCIETY.

House of Delegates, Jan. 12, 1926.

A special meeting of the House of Delegates was held this day at the Medical Library at 4.30 P. M., the President, Dr. De Wolf, presiding.

The resolution from the General Session of December introduced by Dr. J. W. Keefe relative to a cataloging of the library, which was referred to

the House of Delegates, was presented. Dr. Mowry moved that the subject be referred to the Committee on Library with the request that they consider the feasibility and cost of such cataloging and to report on same at the annual meeting. Duly seconded by Dr. Partridge and so voted.

A bill presented by the Committee on Legislation, Dr. Fulton chairman, relating to the practice of the Healing Art, was presented to the House and sections of the bill taken up seriatim and discussed. In brief, this act places the issuance of licenses to persons desiring to practice the Healing Art in the hands of the State Board of Education; the examination of all candidates in the basic subjects of anatomy, physiology, chemistry, physics, biology, bacteriology and the fundamental principles of pathology; upon the successful passing of the basic examination the candidates indicates to the Board of Education the particular school or sect under which he desires to practice and an examination in the principles of this particular school or sect is then given to the applicant by representatives of the particular school or sect under which he desires to practice. It was voted that the following suggestions for changes be made to the Committee on Legislation to be followed if they so deemed it wise:

First, under section 5, the word "only" be inserted after the words "healing art" so that the third sentence shall read: "Such license shall carry authority to the holder thereof to practice the healing art only as taught and practiced by such sect, cult or school"; and secondly, that the last sentence in section 6 reading, "All persons qualified to practice the healing art under provisions of this act shall enjoy equal rights and privileges thereunder," be omitted from the bill.

On motion of Dr. Burgess, seconded by Dr. Skelton, it was voted that the House of Delegates approve the bill. The motion was passed by 7 to 4 vote.

Adjourned.

J. W. LEECH, *Secretary*

House of Delegates, Jan. 13, 1926.

A special meeting of the House of Delegates was called this day at the Medical Library at 5 P. M., the Vice President, Dr. H. G. Partridge, in the chair.

This meeting was called for the purpose of considering the bill to be introduced to the State Legislature relating to the State Board of Health, creating a State Commissioner of Health, defining the powers and duties of the State Board and Commissioner, and relating to town health officers. Essentially this bill provides for a State Board of Health consisting of five persons, two of whom shall be physicians; the appointment of a Commissioner of Health to be ex-officio secretary of the Board and State Registrar; legislative and advisory powers to be vested in the State Board of Health and executive power in the Commissioner of Health; the appointment of deputies to administer the various bureaus of the State Board of Health; and the appointment of physicians to act as health officers in cities and towns. Various sections of the bill were considered seriatim and questionable points were explained by Mr. Jacobson, the attorney for the Rhode Island Medical Society. On motion of the Secretary, seconded by Dr. Skelton, it was voted that the House of Delegates, representing the Rhode Island Medical Society, hereby approves and agrees to the above mentioned bill and urges its passage.

Adjourned.

J. W. LEECH, *Secretary*

WASHINGTON COUNTY MEDICAL SOCIETY.

The forty-second annual meeting of the Washington County Medical Society was held at the Elm Tree Inn, Westerly, Thursday morning, January 14, 1926.

Dr. J. Gordon Anderson was elected to membership, making the total membership 31.

The treasurer's report showed the Society to be in a healthy condition financially with yearly dues of five dollars.

Officers for the ensuing year were elected as follows:

President—M. H. Scanlon, M. D., Westerly.

First Vice President—John Champlin, Jr., M. D., Westerly.

Second Vice President—J. P. Jones, M.D., Wakefield.

Secretary and Treasurer—W. A. Hillard, M.D., Westerly.

Auditor—S. C. Webster, M.D., Westerly.

Censor for Three Years—C. G. Savage, M. D., Westerly

Delegate to Rhode Island Medical Society for two years—P. J. Manning, Wickford.

Councilor to Rhode Island Medical Society for two years—J. D. Barber, Westerly.

Alternate Councilor—M. H. Scanlon, Westerly.

Drs. John Champlin, C. G. Savage and Milton Duckworth were named as the Legislative Committee.

Dr. James F. Cooper, of New York, a representative of the American Birth Control League, Inc., addressed the meeting on "The Technique of Contraception."

Adjourned and dined.

W. A. HILLARD, *Secretary*

RHODE ISLAND MEDICO-LEGAL SOCIETY.

The regular quarterly meeting of the Society was held in the Medical Library, 106 Francis Street, Providence, on Thursday, January 28, 1926, at 5 P. M. Paper, "The Medical Man on the Witness Stand," by Alonzo R. Williams, Esq., of Providence, R. I. Following adjournment, a light supper was served.

JACOB S. KELLEY, M.D., *Secretary*

PROVIDENCE MEDICAL ASSOCIATION

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. Roland Hammond, Monday evening, February 1, 1926, at 8.55 P. M.

The records of the last meeting were read and approved.

The Standing Committee having approved the application of Dr. Andrew W. Mahoney, the Secretary was instructed to cast one ballot for his election.

The first paper of the evening was by Frank G. Wren, A.M., Dean of the School of Liberal Arts, Tufts College, on "Pre-Medical Education."

After speaking of the development in the School of Arts of the courses it has at present, he spoke of the prolonged educational requirements of medical students and the difficulty of harmonizing their pre-medical courses with college curriculums. He then outlined the Tufts plan of courses in science,

social science and languages, followed by medical training; all completed in seven years, and the first year of medicine counted in giving the A.B. degree at the end of four years.

"Undergraduate Medical Education" was discussed by Alexander S. Begg, M.D., Dean Boston University Medical School. He referred to the antiquity of medical instruction with its two methods of apprenticeship and schools, and then described the great change when in 1908 the activities of the Council on Medical Education of the A.M.A. and the Carnegie Foundation with the report of Abraham Flexner led to a great reduction in the number of medical schools and an elevation of standards. He then spoke of some of the attempts to vary the present methods of teaching, especially to bring to the students in the first years an appreciation of the clinical application of their non-medical courses. In the future he thought that the internship might be made a part of the school courses. In conclusion, he spoke of the fine facilities that Providence had, the stage being set here for a medical school.

Then Samuel R. Meaker, Secretary Courses for Graduates, Harvard Medical School, spoke on "Post-Graduate Medical Education." Undergraduate courses are too full and some are squeezed to post-graduate schools. All courses for specialists should be post-graduate.

Post-graduate courses fall in two classes—long-term ones for specialists and short terms for non-specialists who wish to freshen themselves in certain subjects or possibly for specialists who wish to study some phase intensively.

He thought that graduate instruction will grow. Internship and resident services will be standardized and probably under the supervision of schools. All large and important hospitals should be teaching centers and these might be conducted in part by extension courses from organized schools.

The papers were discussed by Drs. DeWolf, Van Benschoten, Richardson, Hawkes, Scammon, Leonard, Blosser, Soforenko, Mead and Begg.

Meeting adjourned at 11 P. M. Attendance 61. Collation followed.

Respectfully submitted,

PETER PINEO CHASE, *Secretary*

HOSPITALS

MEMORIAL HOSPITAL.

The following is a report of the January meeting of the Memorial Hospital Staff, held January 7, 1926:

Meeting called to order at 9:20 P. M. by President Wheaton. Minutes of the December meeting were read and approved. Members present: Drs. Wheaton, Kenney, Moor, Holt, Siske, Wing, Triedman, Kelley, Chapian, Shaw, Touzjian, Jones, Kerney, Lutz, Harris, Gilroy, Hawkins.

Reports of various services were read and approved. Dr. A. T. Jones read a paper on "End Results of Heart Operation." He stressed the importance of following up these cases post-operatively. Meeting adjourned at 10:20 P. M.

JOHN F. KENNEY, *Secretary*

PROVIDENCE CITY HOSPITAL.

At the January meeting of the Board of Hospital Commissioners, the following physicians were elected to the staff for the ensuing year:

Dr. M. J. Nestor, Dr. Alex M. Burgess, Dr. Henry J. Gallagher, Dr. Prescott T. Hill, Dr. Maurice Adelman, Dr. A. R. Newsam, Dr. H. J. Connor, Dr. Carl D. Sawyer, Dr. Henry S. Joyce, Dr. Francis V. Garside, Dr. Walter C. Robertson, Dr. Wilfred C. Pickles, Dr. James McCann, Dr. John Walsh, Dr. George Waterman, Dr. James W. Leech, Dr. Raymond Bugbee, Dr. Frank T. Fulton, Dr. Halsey DeWolf, Dr. Joseph H. Bennett, Dr. Reuben C. Bates, Dr. John T. Monahan, Dr. B. Feinberg, Dr. William W. Cummings, Dr. Benjamin F. Sharpe, Dr. Edward A. McLaughlin, Dr. Anthony Corvese, Dr. Antonio Ventrone, Dr. Pearl Williams, Dr. James F. Boyd, Dr. Earle Kelly, Dr. Louis I. Kramer, Dr. J. Edwards Kerney, Dr. Nat H. Gifford, Dr. Eric Stone, Dr. Frederic J. Farnell, Dr. Harold G. Calder, Dr. Robert M. Lord, Dr. William C. McLaughlin, Dr. Earle Brennan, Dr. John I. Pickney, Dr. Herman A. Winkler, Dr. Bertram Buxton, Dr. Ira H. Noyes, Dr. Edward Cameron, Dr. Ralph DeLeone, Dr. William Muncy, Prof. Frederick P. Gorham, Prof. Philip Mitchell, Dr. Edmund D. Chesebro, Dr. Henry Utter, Dr. Robert M. Lord, Dr. William A. Mulvey, Dr. Guy W. Wells, Dr. Michael

O'Connor, Dr. Alfred McAlpine, Dr. Alfred Potter, Dr. Frank Matteo, Dr. Frank L. Day, Dr. George S. Mathews, Dr. Isaac Gerber, Dr. Jacob S. Kelley.

On January 1st, Dr. Edward T. Streker and Dr. Americo J. Pedorella finished their interne service and entered private practice in Providence. Dr. Louis E. Weymuller, a graduate of the University of Nebraska, and Dr. Lambert Krahulik from the same school, began their services. Dr. Krahulik was sent here from the Pediatric Service at Long Island Hospital by Dr. C. H. Laws, Professor of Pediatrics.

BOOK REVIEW

THE DEVELOPMENT OF OUR KNOWLEDGE OF TUBERCULOSIS.

By

LAWRENCE F. FLICK, M.D., L.L.D.

The Wickersham Printing Company, Publishers,
Lancaster, Penn. Price \$7.50.

After many years spent in the study and treatment of tuberculosis, Dr. Flick has made an extended search of libraries here and abroad and has secured the original papers of those who have made research in this subject, sometimes at the expense of their own lives, and has given a consecutive account of their work. He has given verbatim the important abstracts from the historical reports and thus condensed in one volume a most complete resumé of this important subject.

The book is valuable as a study of the development of medical knowledge as well as of the development of this particular disease. The student of tuberculosis can here get from one book knowledge which has heretofore required extensive reading. It presents vividly the groping of the human mind for the unknown and the opposition which original workers meet even when their researches are rewarded by the truth. It is hard now to realize how indefinite was the knowledge of tuberculosis even only one hundred years ago and that any accurate knowledge as to differentiation of tuberculosis from some other diseased conditions dates back only to 1882, but such is the case, and the story is a most intense one and inter-

estingly told. The practice of medicine is an art, but this book shows how dependent that art is upon science as acquired in the post-mortem room and the laboratory. It should be read by every student of tuberculosis at the beginning of his studies.

ANNOUNCEMENT

INTER-STATE POST GRADUATE FOREIGN CLINIC ASSEMBLIES.

1926.

The 1926 foreign clinic assemblies given under the direction of the Inter-State Post Graduate Assembly of North America will cover a territory including the chief clinic cities of Italy, Switzerland, Germany, Austria, Czecho-Slovakia, Holland and Belgium.

The physicians are going abroad as the result of invitations extended, through this Association, by the leading medical universities and institutions of the countries to be visited to the medical profession of North America.

The members of the party will sail from New York on April 28th, a few days after the meeting of the American Medical Association at Dallas, Texas, thus giving the physicians of the party plenty of time to attend this meeting.

The large first-class cruising steamer, the "Araguaya," of the Royal Mail Steam Packet Line, has been chartered to take the physicians abroad. The party will land at Cherbourg and will go at once to Paris, where the clinic assemblies start.

Dr. Carl Beck of Chicago, the general secretary for the foreign assemblies, is now in Europe completing the clinic arrangements for the assemblies. The clinic cities to be visited are as follows: Paris, Rome, Florence, Padua, Milan, Berne, Zurich, Munich, Vienna, Prague, Berlin, Amsterdam, The Hague, Utrecht, Leyden and Brussels. There will be extension assemblies held in all other principal medical centers of Europe following the main assemblies.

It is of interest to note that a large per cent. of the distinguished teachers who will instruct the assemblies speak the English language. However, there will be a director chosen from the teaching

staff in each of the clinics who will be able to speak good English in case the chiefs do not. It will be the duty of this director to present the history cases and to answer questions as an interpreter. This is one of the reasons why Dr. Beck is now in Europe.

The assemblies are open to members of the profession who are in good standing in their State or Provincial Society, with no restriction to territory. This invitation is understood to be extended to the entire medical profession of North America.

Admittance to the clinics and privileges of the tour will be protected by the issuing of an admittance ticket or card. This rule will be strictly enforced in order to protect the Association in its membership requirements, which is, that a physician must be in good standing in his State or Provincial Society. We will not be responsible or admit physicians to privileges unless they are members of the group.

The members of the party will be limited to a number that can be accommodated comfortably in both the clinics and hotels. After careful consideration and consultation with the transportation department and the foreign clinics, this number has been fixed at five hundred, which includes members of physicians' families. Necessarily this will limit the number of physicians to around three hundred.

Physicians may return home on three separate sailings during the main assemblies. First, at the end of the visit to Italy and Switzerland by way of Cherbourg; second, at the end of the visit to Holland from Rotterdam, and third, at the end of the assembly in Brussels from the port of Antwerp.

It is necessary in order to hold space for the assemblies to send to the office of the Managing-Director, W. B. Peck, Freeport, Illinois, the sum of \$65.00 per person. If for any reason the applicant for space decides that he cannot attend the assemblies, the money will be refunded immediately, if this demand is made as early as six weeks before sailing time. A booklet of information pertaining to the assemblies and prices for same may be secured free of charge by writing the Managing-Director's office.

Ladies' Entertainment: Besides the extensive sight-seeing and travel features, arrangements are being made for a ladies' entertainment committee

in each of the clinic cities. The committees will be composed of the wives of the clinicians and prominent citizens.

In offering the foreign clinic assemblies this Association has the hearty co-operation and assistance of the most distinguished teachers and clinicians in both North America and Europe. The organization in its endeavors hopes to combine with its success in post-graduate work a corresponding advancement in international good fellowship among the members of the medical profession of the different countries of the world.

The officers of the assemblies are:

Dr. Charles H. Mayo, Chief Executive and General Chairman, Rochester, Minnesota.

Dr. Carl Beck, General Secretary, Chicago, Illinois.

Dr. William H. Peck, Managing-Director, Freeport, Illinois.

Mr. Reeve Chipman, Manager of Transportation, Boston, Mass.

A second section of the assemblies for a limited number will be conducted during the summer months for those who are unable to take advantage of the April sailing. The members of the party will leave New York, S. S. "Pittsburgh, on June 19th, return sailing, August 13th, from Antwerp, S. S. "Zeeland."

MISCELLANEOUS

"NO SUCH THING AS SKIN FOOD"—

Hygeia.

The idea that the skin can be nourished by the application of lotions and ointments is a fallacy which probably has its origin in the advertisements of preparations made to sell.

There is no such thing as a skin food. The intact skin can be soothed, stimulated (inflamed), or be made temporarily more pliable by external applications of this nature, but it cannot be fed. There is no physiologic process in the skin of man, unless it is that of respiration, that is so slight as that of absorption. The chief function of the skin is to protect its underlying structures; its construction is such that substances coming in contact with it will not gain entrance to it or to the body, at least in more than negligible amounts. The chief exception to this fact is mercury, which, when applied in a normal fat to the skin, is par-

tially absorbed, a fact often made use of in the treatment of syphilis.—*Hygeia.*

GENERAL GOOD HEALTH BRINGS HEALTHY SKIN.

More spinach and less whipped cream, more water and less fancy drinks, more soap and water on the skin, more fresh air in the sleeping room, and more outdoor exercise will keep the body and its skin covering in a healthy condition, says Dr. Herman Goodman, who writes about the skin of the growing girl and boy in December *Hygeia*, popular health magazine published by the American Medical Association.

The skin cannot be more healthy than the body within the skin. The growing boy or girl is undergoing tremendous changes and the skin in its turn is taking on new activities, new functions, and a different relationship to the body. To preserve the health of the skin, attention should be paid to the upkeep of the health of the body.

A CASE OF BULLET IN THE HEART.

J. W. Steckbauer, St. Louis (*Journal A. M. A.*, May 9, 1925), records a case in which a bullet traversed the abdominal cavity from the buttock to its lodgment in the heart muscle. The heart injury was always secondary in importance to numerous lesions of the abdominal viscera. Laparotomy was performed at once. The following perforations of the viscera were discovered: One in the transverse colon, one in the sigmoid, one in the descending colon, one in the posterior wall of the stomach, and seven in the small intestine. None of these were so large as to prevent simple purse-string closure with catgut. No vascular injury in the abdomen was found. A rubber drain was inserted in the pelvis, and one in the region of the sigmoid. The abdomen was closed in layers with catgut and mass sutures of silkworm-gut. After a stormy post-operative course, requiring a blood transfusion, the patient gradually improved. Nine months after injury, the boy was in excellent general condition and was working as a messenger boy. There were no symptoms referable to the heart, and examination of the heart area was entirely negative.



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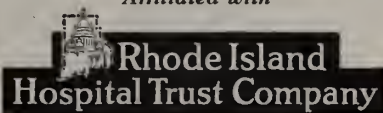
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ORIGINAL ARTICLES

A STUDY IN EXPERIMENTAL ANIMALS OF THE CAUSE AND TREATMENT OF THE SERIOUS REACTIONS FOLLOWING QUINIDINE.*

BY BURGESS GORDON, M.D.

PHILADELPHIA, PA.

During the past year in the Medical Clinic of the Peter Bent Brigham Hospital a number of studies have been made on the cause and treatment of serious reactions following the administration of quinidine sulphate. Interest in this investigation was aroused because of three fatalities that occurred in the wards of the clinic during quinidine therapy. Post mortem examination of these patients failed to demonstrate the cause of sudden death and in one case where death was not instantaneous there was no explanation of the curious toxic state, the appearance of shock and the unusual respiratory distress existing for some hours before the fatal termination.

A review of the literature indicates considerable confusion as to whether the heart or respiratory system is primarily affected. Embolic phenomena,¹ increased irritability of the ventricles,² intoxication of the respiratory centre,³ failure of the circulation,⁴ and other causes,⁵ have been given as explanations for sudden or unexpected deaths following quinidine administration.

It was with the purpose of studying the mechanism of death and thereby obtaining information as to whether there was any means of preventing such catastrophies that the following investigation was made. Adult male cats were used in the experiments. On account of the technique and other details of the study may be found in the original paper.⁶

*From the Medical Clinic of the Peter Bent Brigham Hospital and the Department of Medicine of the Harvard Medical School.

*Read before the Rhode Island Medical Society, Providence, R. I., June 4, 1925.

The first experiments were carried out on animals of known weight to determine the lethal dose of the drug. They indicated, first of all, that there was some relation between the weight of the animal and the size of the dose. It was found that a single injection of between 25 and 30 milligrams of quinidine per kilogram was fatal. The total minimal lethal dose, however, was 45 milligrams per kilogram if 15 milligrams were given every six minutes. It was possible, by giving still smaller doses over a period of two hours, to administer 100 milligrams per kilogram before the lethal effect was obtained. This total dose was four times as great as the minimal lethal amount when one single dose was given. In the non-lethal experiments a single injection of 20 milligrams per kilogram was found to cause no appreciable change in the respiration except occasionally a moderate slowing. This was considered within the margin of safety for administration.

The blood pressure observations were striking in that a sudden drop of the pressure occurred immediately after the first injection of quinidine. This degree of fall varied between forty and eighty millimeters of mercury, and was followed quickly by a gradual although incomplete return to the normal level. There was a tendency for the blood pressure to remain low for a longer time when the dose was large, the return also being less complete. The fall in pressure which was so constant was probably due to two factors, the most important role being played by a peripheral vasomotor depression and the other by the toxic effect on the heart itself.

In studying the direct action of quinidine on the heart, numerous electrocardiograms and roentgenograms were taken at different times following administration. In general, it was found that small doses of quinidine caused transient changes in the ventricular complexes. These changes disappeared after the first injection of quinidine, but became progressively more marked with repeated injections and with a gradually diminishing degree of recovery. The final tracings frequently showed

bizarre ventricular effects. Successive roentgenograms taken after one small injection of quinidine showed a diminution in the size of the heart with a gradual return to normal. If the dose was larger or about 22 milligrams per kilogram of body weight, there was also a contraction immediately after administration, but this was followed by a sudden marked dilatation, then a gradual return to normal. This sudden dilatation was thought to be the result of a decreased elasticity of the heart muscle caused by the direct action of quinidine on the heart,⁷ and the contraction was due to the action of quinidine on the peripheral vessels, producing a fall in pressure.⁸

I have already stated that 20 milligrams of quinidine per kilogram of body weight was found to cause no appreciable change in the respiration except occasionally a moderate slowing. On the other hand, when a single dose of 25 milligrams per kilogram was given, which was in the vicinity of the lethal dose, there was frequently a brief cessation of the respiration followed by a gradual return to normal. In giving larger doses of quinidine, it was found to be an invariable experience for the respirations to cease and for the heart to continue beating for some time after the respiration had stopped.

Throughout the experiments the asthenic appearance of the animals closely resembled the picture of intoxication of the one patient who died at the P. B. B. H. following the oral administration of small doses of quinidine during the last few hours of life. In the animals there was a curious livid appearance of the lips and from time to time they tossed their heads from side to side and threw their legs about limply. It was not uncommon for the cats to develop short periods of convulsions, and in some there was relaxation of the sphincters.

In the first experiments it was the impression that the cats were dying a cardiac or circulatory death. Such drugs as ouabain, strophanthin and digitalis were given intravenously when symptoms of catastrophe appeared. The drugs were also used before the injection of quinidine with an idea of preventing the deleterious effect on the heart and circulation. The harmful effect of quinidine was neither prevented nor removed by the use of these drugs. Suspecting that the vital cen-

ters failed to receive a sufficient blood supply because of the low blood pressure, a number of the animals were placed head down when the breathing stopped, but there was no improvement in the respirations. It was thought that caffeine might be of value if the mechanism of the quinidine phenomenon were a respiratory paralysis, as caffeine is felt to have a stimulating effect on the respiration.⁹ Thus a group of animals were given a moderately large dose of quinidine, a dose sufficient to produce respiratory embarrassment. At the point where the cat was breathing poorly an injection of caffeine sodium benzoate was given (about 5 milligrams per kilogram). In most instances the normal breathing returned. In other experiments the cats received sufficiently large doses of quinidine to produce complete respiratory failure. One minute after breathing had stopped an intravenous injection of caffeine was made. This was followed in about one-half of the series by a return of normal breathing. A definite beneficial effect of caffeine on the untoward depression of the respiratory mechanism following quinidine was shown in one animal which developed failure of the respiration after 25 milligrams per kilogram. On the next day this animal was given caffeine, which was followed in ten minutes by the injection of 30 milligrams of quinidine per kilogram of body weight. There was practically no change in the respirations except a moderate slowing. This showed that caffeine prevented the development of respiratory failure if given before quinidine administration.

Not all cats responded as satisfactorily to caffeine, so other methods of resuscitation were studied. Artificial respiration by means of chest massage was quite successful if the animals were not hopelessly intoxicated by quinidine and when the respiratory movements were made in a slow and careful manner. A most dependable method was found in intratracheal artificial respiration. Cats given fatal amounts of quinidine, either in a single massive dose or in small repeated doses which were sufficient to produce cessation of the respiration for as long as two minutes, were saved by this procedure. Some cats, in which automatic breathing had stopped, were given artificial respiration for from fifteen to twenty minutes before normal breathing returned. A combination of

caffeine and artificial respiration was found to be not only dependable but hastened recovery in most instances.

A result of these experiments, it was found that quinidine has a peripheral depressant effect on the respiratory apparatus of cats which proves fatal at a time when the heart, though somewhat intoxicated, is still viable. Stimulation of the respiratory mechanism by caffeine, combined with the use of artificial breathing, provides a satisfactory means of preventing such fatalities. The study, although not attempting to explain the theory of exitus caused by embolic phenomena, throws light on one type of death during quinidine administration.

SUMMARY

The above experimental data accounts for some of the conflicting views expressed by previous observers on the cause of death during quinidine administration. There is positive evidence of heart muscle intoxication and of a vaso-dilator effect following the use of the drug. However, the respiratory paralysis cannot be explained in any other way than as a specific effect on the respiration and not as the indirect result of the low blood pressure. Successful methods of resuscitation substantiate this view. Experience in the clinic with one patient, who died following quinidine therapy and who showed respiratory embarrassment some hours before death, makes it seem likely that means of resuscitation used in these experiments might be applicable to human cases. It is suggested that artificial respiration be employed with caffeine intravenously in doses comparable to the amount used in the animal experiments (about 0.5 grams intravenously for the average adult).

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"A REPORT ON FIFTY CASES OF PYELITIS IN CHILDREN"*

BY DR. ROBERT M. LORD

PROVIDENCE, R. I.

As I must necessarily turn somewhat to the current literature for experimental work on pyelitis, I wish to give a short summary of a few special phases of the problem of pyelitis which have been worked out by various research men, and then turn to a consideration of the fifty cases which I summarized from the records at our office. I wish to take this opportunity to thank Dr. Utter, Dr. Buffum and Dr. Bates for allowing me to use their case histories.

There has been a great deal written on the mode of infection in pyelitis and on the pathology of the disease. Among the most prolific of the writers has been Helmholz¹ of Rochester, Minn. He has studied the disease in the human being and experimentally in rabbits. In children he believes that there is no correlation between severity of symptoms and the pathological findings. Also that severity of symptoms cannot be used as a localizing agent as to whether there are cortical abscesses; infection of the pelvis, ureter or bladder, singly or combined.

As to the mode of infection, Beeler and Helmholz² found that in 50 per cent. of normal patients the urine was not sterile grown on solid media. Dr. Utter has also attempted to get a culture from the urine not infected with colon bacilli in 10 normal children, using thorough preparation of the patients with bichloride pads and so forth.

*Read before the Providence Medical Association, November 2, 1925.

This was tried both on males and females. He succeeded in getting a sterile culture in only one of this series.

Therefore it seems that bladder cultures alone are unimportant, in that it is practically impossible to prove, even in pyelitis, that the organism comes from the kidney. Most of the large series of cases reported were all taken from the bladder alone.

Heinman³ went a little bit further in his investigations, and in a small series of cases, 12 in number, proved by ureteral catheterization that 6 had infection of the bladder alone and of the remaining cases, 4 were bilateral infections of the pelves and 2 were unilateral.

Helmholz and Kretschner⁴ concluded that ureteral catheterization didn't help much except to group cases better into upper and lower urinary tract infections. They also attempted many autopsies, but these were useless because of the rapid invasion of the colon bacillus after death into all tissues and the rapid destruction of the mucous membrane of the urinary tract. "Only on the assumption that the colon bacillus finds ideal conditions for growth in the pelvis of the kidney is it justifiable to make the assertion that it is the cause of pyelitis which no observer or research man has proven true," say Helmholz and Kretschner.

I wish to just mention by name and give the gist of the work of a few others. Bumpers and Meisser⁵ produced cortical and pelvic lesions in rabbits by injecting into the blood stream Hemolytic Streptococci.

Eisendrath and Schultz⁶ thought they proved that there had to be a partial obstruction and then infection ascended the ureters. Kretschner⁷ thought he proved by Cystography that infection traveled by periuretral and peripelvic lymphatics.

Cabot and Crabtree⁸ say that there is no question but that pyelitis can be produced by hematogenous infection.

In concluding this summary of the literature, let me quote from an article by Helmholz: "The clinical term pyelitis has been used to describe a great variety of pathological conditions all associated with pyuria. Clinically it is impossible to differentiate the different forms involving kidney cortex, pelvis, ureter, or bladder, singly or to-

gether. The pathological anatomy of these various forms of pyelitis is not well established, and does not, at the present time, allow us to determine the mode of infection except in those cases marked by cortical abscesses of the kidney. Only by careful correlation of the findings obtained by bacteriological and pathologic study as well as by experimental work can we hope to reach a better understanding of this problem."

This summary of the exhaustive labors of a few (and these were only a few) of the research men may give you an idea of how great a task we have before us in attempting to solve the puzzle of pyelitis.

I now come to the second portion of my paper, the summary of the results of the study of the 50 cases taken from private practice in this community.

Taking the cases as a whole, the age incidence varied from 3 months to 7 years; 19 cases or 38 per cent. were under one year; 16 cases or 32 per cent. were between 1 and 3 years of age; 7 cases or 14 per cent. between 5 and 7 years. It is, therefore, easy to see that the incidence grows less on advance in age. Only 3 cases or 6 per cent. were under 6 months of age, as would be expected, considering the young infant as naturally resistant to all infections. Of all these cases, only 4, or 8 per cent., were boys, but these boys had 4 of the most severe and resistant cases of pyelitis.

The most interesting phase of pyelitis, as it meets the general practitioner, is, I think, the definite clinical types which we observe. These types may present at the onset no difference, but as the disease progresses it seems to fall into one of these groups.

First: Those cases which have a sudden onset; the urine at once is loaded with pus cells; the patient becomes greatly debilitated; and the infection is very resistant to all of the well known remedies.

Second: Those cases which have as a predominant sign mucous plugs in the urine, and as an early symptom frequency of urination and dysuria. These cases seem to have more definitely an infection of the bladder than of the ureters, pelvis, or kidney tissue.

Third: Those cases having a moderate number of pus cells, singly or in clumps, in the urine and

very little frequency or dysuria. Even with the usual high temperature these children do not appear prostrated or very acutely ill. Also the signs and symptoms clear up rapidly under treatment and the infection in the urinary tract disappears in a short time.

These last are very clearly connected with upper respiratory infections. Certainly, clinically they appear to be hematogenous in origin, even though the research men have failed to recover from the pelvis of the kidney in the human being or from the kidney tissue itself in the rabbit the original infecting organism present either in the upper respiratory tract or in the blood stream. Of course, the great argument of the research men concerning this last group of cases is that the resistance of the tissues of the genito-urinary tract is so lowered that the colon bacillus finds it easy to invade these tissues and set up a pyelitis.

I believe that all cases fall fairly definitely into one of these three groups, and as the disease progresses it is very easy to classify them and keep them classified in the particular group in which they started.

I find very little in the literature on pyelitis written in the past ten years which suggests any such grouping as this. Of course, this is a very unscientific classification, but it does definitely help the clinical man in his outlook on any particular case and aid him materially in estimating what he may tell the parents in regard to duration of the disease and general prognosis.

In our series, 34 cases, or 68 per cent., fell in group 3; 14 cases, or 28 per cent., fell in group 1; 2 cases, or 4 per cent., fell in group 2.

Therefore, most of the cases fell in the group in which it seemed as if the infecting agent must be hematogenous in its origin, or at least prepare the field for the invasion of the colon bacillus.

Particular care was taken to examine the throat and nose in all of our 50 cases, and in every single patient from 3 months of age to 7 years, a definite naso-pharyngitis was found; that is, a marked redness and oedema of the anterior and posterior pillars with enlargement of the tonsils and a glistening red pharynx with enlargement of the lymph follicles. This naso-pharyngitis might or might not be accompanied by mushy oedematous adenoid tissue on digital examination and a rhinitis.

There were also a few cases which had also otitis media singly or double at the time of the onset of the pyelitis. In addition, 21 cases or 42 per cent. showed definite anterior cervical adenitis, the glands varying in size from almonds to walnuts.

In 23 cases, or 46 per cent., we followed these patients in more than one attack, occasionally in as many as 10 attacks, and in every instance the train of signs and symptoms referable to the respiratory and urinary tract occurred together or within a 48 to 72 hour period.

It also might interest you to know the seasonal incidence of the disease. Nineteen cases, or 38 per cent., had their attack between January 1st and April 31st; 11 cases, or 22 per cent., between May 1st and August 31st; 20 cases, or 40 per cent., from September 1st to December 31st. This makes 30 cases, or 78 per cent., occurring in the months in which upper respiratory infections are most prevalent, although here in New England we are never free from epidemics of naso-pharyngitis at any time of the year.

Eighteen cases, or 26 per cent., gave a history of definite attacks of acute upper respiratory infection previous to their first visit at our office.

Just as an interesting observation, the temperature during the attack of pyelitis varied from 101 to 104. Thirty-five cases, or 70 per cent., reached between 104-105 during the attack.

In regard to treatment of the acute attack, we tried all the various well known methods of acidifying or alkalinizing the urine. Occasionally we were obliged to alternate the treatments changing the medium from alkaline to acid and back again. The most successful treatment was found to be that of alkalinization with a mixture of potassium citrate, drams 2 to ounces 4 of syrup of orange, giving 1 teaspoonful every 3-4 hours. We, of course, resorted to urotropin and acid sodium phosphate many times.

Tonsillectomy was done in every case over 4 years of age, and where the pyelitis had recurred more than 5 or 6 times or persisted for more than one month. There were 7 cases in this series. I would like to just enumerate the results of this procedure in the more resistant cases. Four cases were cured shortly after tonsillectomy, and have had no recurrence. In one case, a small tab of tonsillar tissue was left. Following removal of

this tab, which, by the way, was found definitely infected during each attack. After the tonsillectomy, the patient had no recurrence of pyelitis. In one case tonsillectomy was advised frequently without cooperation on the part of the parents. When finally the tonsils were removed, marked improvement resulted. There have been two attacks since that time, but the duration and severity, as shown by both symptoms and signs, has been noticeably influenced. In this case, the kidney tissue is probably so damaged that we have not yet stamped out the infection at that point. The last case has just had a tonsillectomy which was performed during an acute attack of pyelitis which had lasted over 10 days, and was the third attack to occur within a period of 6 months. The urine 48 hours after tonsillectomy was absolutely clear of pus cells, and the child was happy and had no urinary symptoms or fever.

I cannot say with too much emphasis that I believe in tonsillectomy in case of long duration or with frequent recurring attacks of pyelitis.

How do these results influence the theory that the colon bacillus ascending the genito-urinary tract is the primary cause of pyelitis and the upper respiratory infection is only secondary by its debilitating effect on general resistance. I can best reply with another question. Why does the urine become clear of pus cells so rapidly and the symptoms disappear as if by magic in such a short time following tonsillectomy?

SUMMARY

In summarizing my report on the 50 cases of pyelitis taken from private practice in this community, I wish to state:

1. The incidence is greatest between the ages of 6 months and 3 years.

2. There are three definite clinical types of the disease:

(a) Those with sudden onset, urine loaded with pus cells, great general debility.

(b) Those with mucus plugs in the urine, frequency and dysuria.

(c) Those with mild urinary symptoms and signs, and marked upper respiratory symptoms and signs. These last being the majority of the cases seen.

3. There are definite signs of upper respiratory infection in every case of pyelitis, no matter what group it may fall in (I have omitted from this paper, of course, all surgical pyelitis where definite obstruction was found anywhere along the urinary tract).

4. The seasonal incidence, being greatest between September 1st and April 31st, points towards close association between the upper respiratory and the urinary tracts.

5. The most satisfactory treatment, in general, for all three types of cases, is alkalinization of the urine with potassium citrate.

6. Tonsillectomy is by far the most satisfactory surgical procedure in attempting to clear up the more resistant cases.

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EDITORIALS

A PROBLEM OF MEDICAL EDUCATION.

For many years, the student in the medical school has been given a certain amount of knowledge to acquire and digest. This knowledge has been predetermined by the teacher in the medical school and by the boards of medical examiners. Are we sure that the knowledge now required of the men and women studying for the medical degree is that which they will most need when they

begin the practice of their profession? Certain rather radical changes have taken place in the practice of medicine. The physician in private practice, the public health official and the institutional doctor were, in the past, called upon to treat many cases of typhoid fever. Now, typhoid fever has become almost a rarity. Tuberculosis, especially in its advanced forms, is much less frequently seen now than it was fifteen years ago, and yet, are any less hours devoted to the teachings concerning typhoid fever and advanced tuberculosis than there were formerly?

An eminent medical consultant recently stated that in 80 per cent. of the cases he saw in consultation, no physical disease could be found; another distinguished practitioner states that 80 per cent. of the cases that he sees are functional neuroses. Is it not possible that medical education should be revised somewhat along the lines of what the physician meets after he graduates from medical school rather than to have his medical program based on the traditions of the past and the special interest of the teacher? If this is done, perhaps the new doctors will have a better understanding of some of the very real needs of their patients and less about medical rarities.

A study of the case histories of a number of the physicians in our community might give us some rather striking information as to what the doctor nowadays needs to know in his practice, and it would then be very easy to determine whether the medical school had provided such information.

THE WEATHER.

To the casual reader of the future who scans the files of this JOURNAL in search of information as to the quaint ideas and crude notions of his medical ancestors, it may appear that live topics relating to the healing art must indeed have been scarce when it became necessary to ring in that subject which when introduced in drawing room conversation means the negation of intelligent thinking. To the reader of the present day, however, whose scattered calls have dragged him out night and day during the weeks just past, the subject is almost too live to be pleasant, and it must be admitted that it will take the mellowing influence of time to make some of these experiences glow in retrospect with a romance that attaches to all battles with the elements when "a human life is at stake."

The weather—worn-out topic of conversation, covering a multitude of awkward pauses—still has interest for us, the doctors. When Mrs. Brown, in explanation of little Johnny's indisposition says, "It must be the weather"—so hot, cold, damp, dry, changeable, steady or what not—we usually, as tactful inbeciles, the line of least resistance ever our guide, reply, "Oh, yes, indeed, quite so"—or

words to that effect. But what, and we ask it in no flippant spirit, do we really know about the variations in the physical state of our atmospheric environment which we call weather in relation to health and disease? That an important relationship exists cannot be doubted. The premonitory twinges of the rheumatic as the glass falls and the storm approaches—a commonplace, but unexplained. The increase in the appearance of babies in wet days—a tradition, but untested. "Seasonal illnesses," so called, especially the respiratory infections, most frequent in cold weather—why?; and poliomyelitis, scourge of the summer months—for what reason? In this connection it is interesting to note the observations of the Metropolitan Life Insurance Company on 6700 cases, and more recently corroborated by the health authorities at Cornell University from a study of a large number of students, relating to the incidence of the "common cold." These investigations showed that a drop in the weekly mean temperature was accompanied by a rise in the number of colds that occurred, while with a rise in the mean temperature there was a corresponding fall in the number of colds. It is also interesting to note that the general death-rate from all causes is higher when the temperature ranges lower. It must be remembered, however, as these authors point out, that colder weather in this climate means hotter furnaces and an increased time spent in the arid atmosphere of indoors. Thus with the weather we must consider problems of ventilation and heating, problems that have been studied much and yet demand still more investigation.

THE TREND OF VETERANS' RELIEF LEGISLATION

We note with satisfaction the efforts of Senator Metcalf to have established in Rhode Island better hospital facilities for veterans. This satisfaction is born not out of state pride alone, but of the larger desire that the legitimate needs of disabled veterans shall be better served. Admitting the desirability of such a hospital being located in Rhode Island, and pledging our support to the fulfillment thereof, we must not be blinded to the dangerous trend in medical economics that "Vet-

erans' Relief" legislation is showing. Under the provisions of paragraph 10 of section 202 of the World War Veterans' Act, 1924, the federal government now treats at public expense *diseases and injuries having no relation to any government service, military or otherwise*. Regardless of the nature of their disabilities, regardless of their origin, veterans of any war, military occupation or military expedition since 1917 are eligible for treatment at government expense in government hospitals. Moreover, the government pays transportation charges incident to such treatment. The only condition the applicant must comply with is to prove his illness or injury—regardless of service origin or not—abandon his home physician or hospitals of his place of residence, and enter a government institution.

This approaches perilously communistic medicine—a political concept obnoxious to American ideals. Even the location of a veterans' hospital will not remove the evil results of this legislation in its tendency to withdraw patients from the small cities and towns and country districts to the larger cities where such government hospitals are usually located.

The medical profession yields to no other body in its ardent desire to see that every veteran receives rewards commensurate with the service rendered by him to his country during the war, but we believe that federal free medical and surgical care of veterans should be restricted to those whose disabilities have been caused by war service or to those who are unable to pay for such service.

RECENT INVESTIGATIONS OF BLOOD SUGAR*

BY PHILIP H. MITCHELL, PH. D.

PROVIDENCE, R. I.

Before the present brilliant application of the use of insulin was possible, extended physiological investigation of the internal secretion of the pancreas was necessary. Before the next step in the control of diabetes, that is its prevention and cure, can be taken, much more physiology must be known. Among the problems to be investigated is that of the mode of action of insulin. This review

treats of recent work on this problem, work which seems to establish the theory that insulin causes the transformation of glucose in the body into a peculiarly useful and hitherto unrecognized form.

In order to appreciate this theory, one needs to acquire a new respect for a molecule of glucose and to learn to regard it not as a fixed, static thing, but as a peculiarly complex and changeable aggregate of atoms.

The well-known formula, long used to represent glucose, $\text{CH}_2\text{OH}\cdot\text{CHOH}\cdot\text{CHOH}\cdot\text{CHOH}\cdot\text{C}\cdot\text{HOH}\cdot\text{CHO}$, shows four asymmetric carbon atoms and a "free" aldehyde group; but more recent work indicates that this formula is incorrect. There are several reasons why it seems wrong: (1) If it really possessed the aldehyde group thus shown, it should be as readily oxidized as are other aldehydes. But it is not. Even under the conditions prevailing in hot Fehling's solution, considerable time is required for complete oxidation, and in the animal body glucose can circulate without necessarily being oxidized, even though certain aldehydes appear to be oxidized very rapidly. (2) Glucose shows behavior toward polarized light not explained by the classic formula; that is, it shows mutarotation (birotation).

As is well known, pure glucose, freshly dissolved in water, rotates polarized light about twice as much as it does a few hours later or even a few minutes later, if warmed in a solution of the right reaction. This indicates some intra-molecular rearrangement, a tautomerism. (3) From ordinary glucose, two different varieties of forms can be separated. From a solution in 70 per cent. alcohol, there can be crystallized a form which has a specific rotation of about $+110$, but which changes in watery solution to the usual form with a specific rotation of $+52.5$. From hot water there can be crystallized a form with a specific rotation of about $+19$, which also changes in watery solution to the usual value of 52.5 . Such behavior can be explained only by assuming the presence of a fifth asymmetric carbon atom in addition to the four represented in the old formula. This and other chemical observations have led to the belief that ordinary glucose at equilibrium in watery solution is a mixture of two lactone forms known as α -d-glucose and β -d-glucose. Either of these can mutate into the other or possibly into the aldehyde

*Read before the Providence Medical Association, December 7, 1925.

form. In solution, ordinary glucose at equilibrium has about 37 per cent. of its molecules in the alpha form and about 63 per cent. in the beta form, and thus the specific rotation becomes $+52.5$. If mutation into the aldehyde form is favored by alkalis, the ready oxidation of glucose in alkaline solution would be explained.

Emil Fischer and also Irvine and his co-workers have shown that there are still other modifications of glucose at least in the form of derivatives. Fischer prepared methyl glucoside, differing from the ordinary ones that can be made from the alpha and beta forms. It is of peculiar interest because it is unstable and readily subject to oxidation. Fischer called it gamma-methyl glucoside. Theoretically it should yield two forms of glucose corresponding to the alpha and beta lactone forms, but because of their instability, these two forms have not as yet been isolated. Nevertheless, they are supposed to exist and are sometimes called the gamma forms of glucose.

In 1920, Hewitt and Pryde described experiments in which they believed they had recognized gamma-glucose. They introduced solutions of pure, ordinary glucose into tied-off loops of the intestine of a living animal, and found, on removing the solutions, that they showed a rotating power too low to correspond with their reducing power. This suggested the presence of gamma-glucose. The specific rotation of the solution slowly rose, after removal from the intestine, until it came to so agree with the reducing power as to indicate the presence of the usual forms of glucose. They obtained this effect only in the living intestine. They could not obtain it in the dead one. Their work has not been satisfactorily confirmed, but it served to suggest that an especially unstable and perhaps readily oxidizable form of glucose might arise in the living body.

Two years later (1922) Winter and Smith showed that the glucose of ordinary blood had a rotating power too low for its reducing power, while the glucose of diabetic blood showed no such discrepancy. They believed, therefore, that they had detected in blood what Fischer described as gamma-glucose, just as Hewitt and Pryde believed they had detected this substance in the intestine. Winter and Smith suggested that the real failure in diabetes was the cessation of the

change of relatively inert α - β -d-glucose into relatively active glucose, a change occurring in the normal body.

This work on normal and diabetic blood was repeated by several American investigators with varying success. One group of workers were quite unable to confirm Winter and Smith. It must be confessed, indeed, that the work is technically difficult. Remembering the always low concentration of glucose in blood and the necessity of removing blood proteins before analyzing for glucose, one sees difficulty in making fine distinctions; but when one notes that these distinctions involve recognition of percentages of glucose by reducing power to within about two thousandths of a per cent. and of rotating power down to the two thousandths of a degree, the exactions of the technique become apparent. All biochemists who have had experience with sugar determinations both by reducing and rotating power will agree that such exactness is not ordinarily attained. On this account the nature of the blood sugar remained in doubt.

So the matter stood for over two years, until very recently, when two Danish investigators published a series of papers reporting brilliant work which I believe opens an entirely new aspect of sugar metabolism. These writers are Lundsgaard and Holboll. They first showed that whereas glucose solutions mixed with muscle tissue or with insulin *in vitro* did not show any change from ordinary α - β -d-glucose, there *was* a change when fresh muscle tissue and insulin were both allowed to act on pure glucose solution at body temperature. The glucose, though not losing in reducing power, did lose in rotating power, so that its specific rotation fell to about one-half its usual value. On standing at room temperature, the specific rotation gradually rose until after about forty-eight hours it reached the usual value for α - β -d-glucose (52.5). If the muscle used had been dead even as short a time as two hours, it produced no effect on the glucose. The amount of the change in the glucose was increased up to a certain maximum by using more insulin and muscle substance with the glucose solution, but was more nearly proportional to the amount of muscle than of insulin; i. e., a very few units of insulin were sufficient to produce the maximum effect, but repeated

additions of considerable amounts of muscle were required for this result.

Recalling, however, that one of the common forms of glucose (the beta) has a low specific rotation (about nineteen) you naturally ask, as did these investigators, if the results obtained did not merely represent a shift of the usual equilibrium between the alpha and beta forms toward an increase of the beta at the expense of the alpha. This seemed likely, since they did not obtain any glucose with specific rotation less than nineteen.

They, therefore, undertook an elaborate investigation on a pure β -d-glucose, and proved conclusively that its behavior in coming to equilibrium (as shown by changes in specific rotation) was very different from the behavior of the form of glucose produced by the interaction of insulin and muscle. β -d-glucose under any circumstances completes its changes in a few hours, while the glucose which they discovered requires two days to complete its changes. They, therefore, proposed to call their product "new-glucose" until further investigation reveals more about its nature.

They next investigated the nature of the blood sugar in normal human blood. They were able to study this more effectively than were Winter and Smith and other previous investigators because they used a new method of determining blood sugar, that of Hagedorn and Jensen (1923). This method permits very accurate results. They found that all normal blood contained a peculiar form of glucose. In some cases, the specific rotation of the blood sugar was less than nineteen, which proved that it could not be the long known β -d-glucose. They, therefore, believe it should be called "new glucose." It could be detected in the blood under all normal conditions. Even shortly after taking 100 grams of glucose, a normal person has "new glucose" prominently present in his blood, so that a rapid change is indicated.

In diabetics, however, no "new glucose" could be detected in the blood of ten patients while they showed marked symptoms, but within two hours after administration of insulin, "new glucose" appeared in the blood.

That this transformation of glucose is essential to make it useful in metabolism is altogether likely. For instance, they showed that in every case where "new glucose" was found, the venous

blood contained less glucose than the arterial, while in the absence of new glucose, the venous blood contained as much sugar as the arterial. In short, sugar was removed, presumably used, *when present as "new glucose"*—but not otherwise.

"New glucose" was also found in spinal, edoema and pleural fluids from persons showing normal sugar metabolism.

What is "new glucose"? It may be gamma-glucose, which Fischer postulated to exist, but which has not been proved to occur except as glucosides. This does not seem very likely, since "new glucose" outside the body reverts to ordinary α - β -d-glucose in about two days, and without decrease in amount. Such behavior would not be predicted for the very unstable gamma forms. "New glucose" may be nothing else than the simple, free-aldehyde form which we used to suppose was that of ordinary glucose. This point will require investigation.

Indeed, one is struck by the many new lines of investigation opened up by the discovery of "new glucose." Where in the body is it formed? Do the intestinal wall and the liver react with the aid of insulin to form new glucose as well as do the muscles? Is new glucose better able to penetrate living cells than is ordinary glucose? What is the nature of the substance contributed by muscle to aid new glucose production? Is it perhaps some unstable protein which changes after the death of the cell? How is glycogen related to new glucose production? Must carbohydrate food go through the glycogen stage before conversion to new glucose?

These and many other problems await investigation. When they are solved, new light will be thrown upon carbohydrate metabolism, and so, indirectly, upon the nature of diabetes.

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HOSPITALIZATION OF WAR VETERANS TODAY

BY INEZ M. PUGH

Notwithstanding all that has been said and written about hospitalization of disabled American War Veterans, how many individuals in the United States today have any definite idea of the elaborate hospital program that the U. S. Veterans Bureau is carrying on?

Already operating 49 hospitals, 74 dispensaries, 94 clinical laboratories, about 100 X-ray laboratories and housing over 29,000 patients, the Bureau is constantly constructing and opening new hospitals and incorporating additional facilities in those already open. These hospitals are as modern and complete as science and careful planning can make them and no detail of utility or convenience is sacrificed to a false prompting toward economy.

In order that the medical authorities of the hospitals may be enabled to give their undivided attention to the care and treatment of patients the Director has established a business manager in each hospital to look after the financial and economic affairs of the institution.

These men have been carefully selected with regard to demonstrated ability as business executives and are expected to show gratifying results in the way of increased economy of administration, and in handling the thousand and one business details inseparable from the functioning of a large institution.

It has long been the Director's conviction that these duties should not be imposed upon the medical men charged with the actual care and treatment of the disabled and the establishment of these business managers is a definite gesture planned to increase efficiency on the part of the physicians as well as in the economic operation of the hospital.

In the matter of hospitalization of disabled veterans the President, the Director of the Bureau and the Congress are thoroughly in accord and whatever may be necessary in material and personnel to furnish adequate hospitalization and medical service of the highest order is being and will be provided for. The generous provisions of the Reed-Johnson Bill have permitted the Bureau to open its hospitals to veterans of any war in which the United States has participated since

1897 and already over 2,000 have availed themselves of this benefit showing plainly the acute need for such assistance.

In planning the hospitals, not alone is the medical care of the men considered, but recreational and entertainment features are also provided, chief among which latter are the radios which are being installed in all Veterans' Hospitals as rapidly as suitable equipment can be obtained.

In the appropriations recently made available by Congress complementing the Third Langley Bill, six new hospitals and a National Training School for the Blind are provided for and funds are made available for the completion of another hospital now partially constructed.

In order to secure for the Bureau the greatest possible efficiency in medical service the Director has assembled a body known as the Medical Council which is composed of thirty of the leading specialists of the United States and which meets at his call to counsel and advise with him and the Medical Director in all matters pertaining to the medical care and treatment of the disabled.

The Director feels that it is much more a service to give a man back his health and with it his economic independence than it is merely to maintain him in a hospital and pay him compensation. Therefore, this feature is a significant step in demonstrating his theory that cure rather than money compensation should be the chief endeavor of the Bureau.

In this theory the Medical Council heartily concurs and in accordance with this policy a hospital's efficiency is measured by its accomplishment in recoveries of the disabled.

In this phase of the work, however, the attitude and co-operation of the patients is half the battle and if past experience is a safe criterion for the future the outlook is indeed encouraging.

The boys who had the courage and grit to carry on throughout the war are demonstrating that same spirit in their slow and irksome fight back to health and strength and in each recovery credit for the victory belongs quite as much to the patient as to the physicians and nurses.

In many of the Bureau hospitals the men find much pleasure, healthful exercise and recreation in the planting and tending of truck and flower gardens. This occupation is always encouraged and provisions for various other forms of occupa-

tional therapy are constantly being developed in the hospitals.

In a great many of the hospitals, a small weekly or monthly paper is edited and published entirely by the patients and personnel and many of these papers show genuine merit in carefully prepared articles which are a faithful reflection of the fine spirit prevailing in the hospitals, as well as many amusing little local squibs which record the daily life at these great institutions.

There was an old fashioned idea that a hospital was a gloomy, disinfected place, redolent of iodoform and hung with fever charts, in which to be sick and do something about it, but this notion has given place to a gratifying knowledge that the Veterans' Bureau Hospitals at least, are "comfy," cheerful and pleasant, and that mental contentment for the patients is quite as important an objective as physical relief and betterment.

There is a certain personal quality in the service that the physicians and nurses render the disabled as though they bear constantly in mind with grateful remembrance the cause and source of the wounds and hurts they strive to heal.

It is on such a basis as this that there has been built up in the U. S. Veterans' Bureau Hospitals a morale and an esprit de corps of which both the patients and the personnel are justly proud, and upon which most surely rests the success of these institutions.

U. S. Veterans' Bureau

SOCIETIES

PROVIDENCE MEDICAL ASSOCIATION

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. Roland Hammond, Monday evening, March 1, 1926, at 8:50 o'clock. The records of the last meeting were read and approved.

A letter from the Providence Committee, American Foundation for the Blind, was read, urging attendance at a talk by Miss Helen Keller.

Dr. Van Benschoten reported a case of a boy pecked in the eye by a rooster, pulling part of the iris to the surface. Operation resulted in a good eye.

Dr. Mowry reported that the walls of the dining room had been refinished and cautioned the members against marring them.

Dr. Frederick N. Brown gave helpful advice.

The first paper of the evening was on "The Care of Diabetics at the R. I. Hospital Since 1910," by Alex. M. Burgess, M.D.; Louis I. Kramer, M.D.; Miss Miriam J. Carpenter, Miss Helen S. Munroe. Dr. Burgess read the paper.

The two great advances in this period have been the systematic instruction of patients and the use of insulin. While the incidence of the disease seems increasing, the span of life is increasing also.

The period under discussion he divided into three parts: when treatment was as before; the period of under nutrition with instruction, and the period with insulin. In the first the light cases could be improved, but were always back sliding; in the second the severe cases were held in check, but dragged out a miserable existence; and in the third the severest cases lead a practically normal life. Hospitalization is now a mere incidence, with a large out patient clinic. Before insulin, no coma cases recovered. Now, with the use of very large doses of insulin, recovery can be assured unless there are complications. Surgery now can be done as indicated irrespective of diabetes. In conclusion, he outlined detailed routine improvements in technique, plans for which are now being matured. Dr. Louis I. Kramer stressed particularly the care of coma and reported cases.

The discussion was continued by Drs. Wells, Mathews, Streker, Mowry, Gerber, Burgess, Van Benschoten and Leonard.

The second paper was on arterio-sclerosis by Dr. Clinton S. Westcott.

This is best described as a thickening of the arterial coats with degeneration diffuse or circumscribed. It is an anatomical rather than clinical entity. Its forms differ in general according to the size of vessels affected.

The causes seem to be the wear and tear of life and intoxications. Diagnosis is of a double nature, as to its presence and activity.

The signs and symptoms are largely dependent on the disfunction of organs due to impaired blood supply; in active cases, hemorrhage and pain are the characteristics.

Treatment resolves itself into keeping bodily activities at a low pain. The iodides, nitrites and particularly sedatives are of value.

To secure results we must anticipate.

The paper was discussed by Drs. Mathews, Gray, Mowry and Westcott.

Meeting adjourned at 10:15 P. M.

Attendance, 71.

Collation was served.

Respectfully submitted

PETER PINEO CHASE

Secretary

RHODE ISLAND MEDICAL SOCIETY

The regular quarterly meeting of the Rhode Island Medical Society was held Dec. 3, 1925, at 4 P. M. at the Medical Library, Providence, the President, Dr. DeWolf, presiding.

The minutes of the September meeting of the Rhode Island Medical Society, and the minutes of the November meeting of the Council and House of Delegates were read by the secretary, and approved.

Dr. Richardson reported on the Clinical Conferences.

Dr. DeWolf announced that all the members were invited to a meeting Dec. 10 at 8 P. M., at the Medical Library, of the Rhode Island Ophthalmological and Otological Society. A paper to be read by Dr. Harry P. Cahill, Chief of Aural Service, Boston City Hospital, on "Brain Abscess Complicating Aural Disease."

Dr. J. W. Keefe spoke about having the Library properly catalogued to the advantage of all. A motion was made by Dr. Leech, and duly seconded, that this matter be referred to the Committee on Library. So voted.

Dr. DeWolf expressed his pleasure at seeing so many members from outside of Providence present at the meeting, and hoped for a continuance in larger numbers.

The following papers were read:

1. "Measles Immunization," Dr. H. P. B. Jordan; discussed by Dr. D. L. Richardson, Dr. W. P. Buffum, Jr.

2. "Diagnosis and Treatment of Gall Bladder Disease," Dr. J. B. Ferguson; discussed by Dr. J. F. Boyd with slides, Dr. C. O. Cooke.

3. "Deep X-Ray Treatment — Its Development and Present Status," Drs. I. Gerber and S. Albert; discussed by Dr. H. C. Pitts.

4. "The Infected Kidney — Its Physiology, Pathology and Treatment," Dr. Clyde Leroy Deming, Clinical Professor of Surgery, Yale School of Medicine; discussed by Dr. J. E. Kerney, Dr. E. Stone, Dr. J. A. McCann.

After adjournment a collation was served.

J. W. LEECH, *Secretary*

The regular quarterly meeting of the Rhode Island Medical Society was held March 4, 1926, at 4 P. M. at the Medical Library, the First Vice President, Dr. H. G. Partridge, presiding in the absence of the President.

The minutes of the December meeting and of the two special meetings of the House of Delegates of Jan. 12th and 13th were read by the secretary pro tem., Dr. Peter P. Chase, who was elected in the absence of the secretary on account of illness, and approved.

The First Vice President called attention to the coming meeting of the American Medical Association at Dallas, Texas, in April, and directed the attention of the members to announcements of rates and accommodations by several of the railroad companies posted in the reading room of the Library.

The first paper was on "The Spinal Fluid," by Dr. John E. Donley, Providence.

The second paper was on "Blood Transfusion," by Dr. William P. Davis, Providence; discussed by Drs. McDonald and Cameron.

The third paper was on "Treatment of Suppurative Conditions of the Lung," by Dr. Wyman Whittemore, Assistant Surgeon, Massachusetts General Hospital, Boston; discussed by Drs. Matteson, Kelley, and Gerber.

The presiding officer stated that a bill to regulate the practice of medicine, and known as the Healing Art Bill, had been presented to the House of Delegates at its meeting on Jan. 12th and had received the approval of the House of Delegates; that since the introduction of this bill into the legislature so many changes had been made in the original bill as in the opinion of the Committee on Legislation to vitally change the purpose and in-

tent of the bill from that which the House of Delegates had approved; and that the Committee on Legislation did not feel justified in extending to the altered bill, known as the Clifford Substitute A Bill, the support which the House of Delegates had voted to the original bill. It seemed desirable that further consideration of the bill as now in the legislature be given it by the House of Delegates. Dr. Bugbee moved that a vote of confidence of the Society be given the House of Delegates in its action in regard to pending legislation. After discussion by Drs. Ventrone, Brown, Kelley, Mowry, Hawkins and Skelton, the motion was lost. On motion of Dr. Skelton, duly seconded, it was voted that a committee of five be appointed to consider a memorial to Dr. Chas. V. Chapin. A rising vote of thanks was attended Dr. Whittemore for his kindness in appearing before this Society.

After adjournment a collation was served.

P. P. CHASE, M.D.,
Secretary pro tem.

HOUSE OF DELEGATES

A special meeting of the House of Delegates was called by the First Vice President, Dr. H. G. Partridge, in the absence of the President, at the Medical Library, at 11 o'clock A. M., March 5, 1926. Dr. P. P. Chase was elected secretary pro tem. in the absence of the secretary on account of illness.

The purpose of the meeting was to review and take action upon the so-called Healing Art Bill, S-51 Sub. A. Dr. Fulton explained that this bill is the substitute which the Senate Committee on Judiciary has introduced in the place of the Healing Art Bill which the House of Delegates approved at its meeting on Jan. 12th, 1926. He pointed out the many and important changes which had been made in the original bill, whereby the intent and purpose of the bill as it appeared to the House of Delegates at its meeting on Jan. 12th had been largely nullified. He stated that it is no longer the same bill in intent or purpose and that it did no longer meet with the approval of the Committee on Legislation. He, therefore, moved and it was duly seconded that the House of Dele-

gates disapprove of bill S-51 Sub. A, the so-called Healing Art Bill now before the state legislature. So voted.

Adjourned.

Dr. PETER P. CHASE, *Secretary pro tem.*

RHODE ISLAND SOCIETY FOR NEUROLOGY AND PSYCHIATRY

The February meeting of the Rhode Island Society for Neurology and Psychiatry was held at the home of Dr. George L. Shattuck, 150 George Street, Providence, R. I., on Monday evening, February 8, 1926, at 8:30 o'clock.

Dr. Harrington made a brief report of the bill before the legislature for the establishment of a hospital for the criminal insane.

Dr. Paul J. Ewerhardt was elected to membership. The program was as follows:

"The Role of the Vegetative Nervous System in Determining Some Organic Nervous Diseases," Dr. Harvey B. Sanborn. This paper was discussed by Dr. Charles A. McDonald and Dr. John E. Donley.

Report on the New York meeting of the Association for Research in Nervous and Mental Diseases, by Drs. Charles A. McDonald, William N. Hughes and Harvey B. Sanborn. Following these reports, informal discussion took place.

Following the meeting refreshments were served by Dr. Shattuck and on motion of the President, Dr. Harrington, a vote of thanks was extended to Dr. Shattuck for his hospitality.

HOSPITALS

The following is a report of the March meeting of the Memorial Hospital Staff.

"Meeting held March 4, 1926.

"Meeting called to order at 9:00 P. M. by President Wheaton. Minutes of the January meeting were read and approved. Members present: Drs. Wheaton, Shaw, Jones, Kerney, McGraw, Marshall, Boyd, Bates, Triedman, Saklad, McLaughlin, Lutz, Moor, Miller, Holt, Towle, Sprague and Kenney. An interesting paper on 'Gall Bladder Examination' was read by Dr.

James F. Boyd. Remarks on record system made by Dr. A. Miller. Motion was made and duly seconded that the President appoint a Committee to consider ways and means to keep up records and to suggest rules, etc., to Trustees. Committee: Dr. A. T. Jones, Chairman; Dr. A. Miller, Dr. J. L. Wheaton. Meeting adjourned at 10:10 P. M.

"JOHN F. KENNEY, M.D."

MISCELLANEOUS

THE USE OF PHYSOSTIGMIN IN ABDOMINAL DISTENTION.

The use of physostigmin in abdominal distention was studied by Hayes E. Martin and Soma Weiss, New York (*Journal A. M. A.*, May 9, 1925), in nontoxic cases in which abdominal distention followed laparotomy, surgical shock, early intestinal obstruction, or injury to the central nervous system, and in toxic cases, in which the condition was associated with peritonitis or general toxemias, such as pneumonia or long-standing intestinal obstruction. In every case various simple measures, such as gastric lavage, enemas, turpentine stupes and colonic irrigation were employed when distention occurred, and physostigmin was not used unless those measures prove ineffective, the purpose being to learn whether physostigmin is capable of relieving these patients. All the patients who received physostigmin were in a serious conditions, and all manifested alarming symptoms. All of the sixteen patients embraced in the group of nontoxic cases of abdominal distention were completely relieved of this distressing symptom by the injection of physostigmin. The fifteen patients embraced in the toxic group were benefited but little or not at all. The results of these experiences indicate that the drug should be administered in doses sufficient to induce its characteristic therapeutic effect or until the occurrence of systemic actions indicates that the limits of safe dosage have been reached. Physostigmin is a useful drug for the treatment of abdominal distention in nontoxic cases, especially. It is less useful in cases of the toxic type. It has fallen into disuse mainly because of the employment of

insufficient doses, partly, perhaps, because of the failure to distinguish the type of cases in which it is more effective (nontoxic type) from those in which it is less effective (toxic type). The effective dose of the salicylate or benzoate, in cases which do not yield to simple measures, is from 3 to 4 mg. (from 1-20 to 1-16 grain) injected intramuscularly. Such a dose may be repeated once after an hour if the first does not induce any systemic effects, and it may be repeated three times (at least) at intervals of three or four hours if there are no symptoms which indicate that its systemic effects persist. The general condition of the patient and his behavior toward the drug must be observed carefully and must serve as a guide for the repetition of the dose. The dose required for those patients who respond to simple therapeutic measures, such as rectal enemas, has not been determined.

ANTAGONISTIC ACTION OF POSTERIOR PITUITARY EXTRACT AND INSULIN.

From work performed on diabetic patients, Robert C. Moehlig and Harriet B. Ainslee, Detroit (*Journal A. M. A.*, May 9, 1925), believe that pituitary extract injections improve the muscular asthenia to a great extent. This is true despite the fact that the patients, for the purpose of the work, are not placed on a diet. Patients with hypopituitarism suffer from asthenia, and fatigue is easily induced. The opposite is true in cases of hyperpituitarism. Posterior pituitary extract injected into normal rabbits produces, as a rule, a slight rise in blood sugar. Posterior pituitary extract, when injected simultaneously with insulin, prevents the fall produced by the latter. Posterior pituitary extract, injected during insulin hypoglycemic convulsions, produces a rapid rise in blood sugar, with subsequent recovery of the rabbits. The point of attack of the pituitary extract seems to be in the periphery; viz., the skeletal muscle metabolism.

Vincent J. Oddo, M.D., 322 Broadway, Providence, R. I., now limits his practice to Urology and Urological Surgery.



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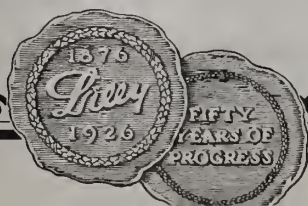
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THE RHODE ISLAND MEDICAL JOURNAL



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ORIGINAL ARTICLES

THE INFECTED KIDNEY, ITS PHYSIOLOGY, PATHOLOGY AND TREATMENT*

BY CLYDE LEROY DEMING, M.D.†

The infected kidney is being treated by men in all branches of medicine. Internists, pediatricians, gynecologists, obstetricians and surgeons, all employ therapy of various kinds. Some of the results are brilliant, others are correspondingly disheartening. Some kidney infections go unrecognized and are treated for malaria, "la grippe," appendicitis or pneumonia. A simple urine examination for infection might quickly correct the diagnosis. The surgeon commits just as grave an error when he removes a stone from an infected kidney and expects his case is cured. An obstetrician who allows a kidney infection beginning early in pregnancy to go untreated exercises no better therapy. If then, these cases are to be treated by all classes of physicians we must attempt to educate ourselves more thoroughly in the physiology and pathology of this organ.

Now if one can visualize the kidney as an unfortunate organ which is being surrounded by an invading army, technically known as a perirenal infection, or having its props knocked from under it by a pelvic infection or having its parenchyma riddled by a colon or staphylococcus infection, one may then see that there are only three regions to be kept in mind from the anatomical standpoint. These may exist as separate lesions and can be diagnosed in many cases as such without the aid of cystoscopy and ureteral catheterization. Of course, it implies the knowledge of the physiological reaction of a kidney to the invading organisms in terms of functional tests. These tests, if accurately performed, give a fairly complete knowledge as to the location of the lesion anatomically,

and if a parenchymatous lesion, what percentage is damaged.

A great many renal tests are in vogue today. Probably more are used in the treatment of so called medical nephritis (for I shall apply this term to those cases whose urines show no evidence of infection) (excluding hydronephroses, neoplasms, nephroptoses and nephalgias). We may use the Mosenthal, indigo carmine, roasnaline trisulphate, potassium, iodide, benzoate, createnin, combination of urea in blood and urine; sp. gr. phloridzin and many others, but in infected kidneys none compare with the phenolsulphonephthalein test. The phthalein test more adequately meets the requirements of an ideal functional test although many have proclaimed its inferiority. I believe its inferiority has been acclaimed because of the operator's underestimating the value of the details of this test. Accuracy means success. Geraghty demonstrated the importance of always injecting the dye into the lumbar muscles and not into the biceps or gluteus. Intravenous method is still more accurate; but caution must be taken in severe cardiac cases.

Certain deductions are to be made with the regard to percentage excreted in two hours. We may say that there has been a normal secretion when 65 to 75% is obtained. Any reading below 50% is low and probably means pathology although not serious. A reading of 30% for two hours can be interpreted as definitely low and means that the patient has pathology in both kidneys; or, if the patient has but one kidney that kidney has pathology. One kidney has the capacity for compensating for the pathological one providing it is free from any lesion. Hence, one kidney may function very little or none at all and the total two hour 'phthalein be a normal reading.

The total 'phthalein secretion in two hours is but one half its value. I wish to refer to the importance of the appearance time of the secretion of the dye. Many patients can void every few minutes if they have a good ingestion of water before the injection of the drug. Providing there is no obstruction ten minutes only should be re-

*Read before Rhode Island Medical Society, December 3, 1925.

†From the Department of Surgery, Yale University, School of Medicine, New Haven, Conn.

quired for its appearance. If the kidney tissue is infected the appearance time will be slow. A pyelitis or a perinephritis does not retard the appearance time or diminish the amount of secretion; so that low percentage and slow appearances mean the infection of the parenchymatous portion. These two factors considered separately and relatively should give quite accurate data as to the amount of the kidney tissue involved.

Recently, Shaw has pointed out the value of fractional 'phthalein readings. The peak of 'phthalein output was the first 15 minutes in the normal kidney. Kidneys with obstruction or infection were found to have their peak the third 15 minute period or later. Persons with subacute nephritis and chronic parenchymatous nephritis, and cardiovascular hypertension nephritis without infection may show a normal two-hour test, but the peak of elimination will occur during the second and third 15-minute period. As the patient recovers, the peak of 'phthalein excretion shifts from the third or second 15-minute period to the first. The appearance time becomes shorter and the percentage of secretion greater.

The blood urea or nitrogen is a test for retention and not a true physiological functional test. One may not expect a nitrogen retention with a two-hour 'phthalein of 40%, but need not be surprised to find an elevated nitrogen in cases with 30% and under. A nitrogen balance can be maintained in a patient with a low reading of 10% excretion of 'phthalein. We occasionally see this picture in our prostatic cases in which the kidneys are chronically infected; the patient has produced a nitrogen equilibrium even with extreme damage to the kidneys. From an operative standpoint the urologist looks for a stable renal secretion, whether high or low, for the compatibility of future existence. If a patient is operated upon with an oscillating renal function, death from uremia will many times ensue. The opposite may hold true in one exception, and that is, in cases with unilateral renal tuberculosis, where there is a tubercular toxic nephritis in the uninfected kidney—i. e., a patient has undoubted tuberculosis in one kidney while the other kidney shows no evidence of infection, but the 'phthalein secretion is delayed and the total two-hour output is low and variable—after the tubercular kidney is removed

the secretion from the good kidney returns with double or compensatory amount. So we may conclude that in a tubercular urinary infection in the presence of a low and variable 'phthalein, but one kidney need be involved.

The organisms found in kidney infection include the larger part of the list in our texts of bacteriology. The colon, however, retains its place at the head of the list, estimated to be found in about 85 to 90% cases. In our clinic it is 92%. *Staphylococcus aureus* and *albus* are not uncommon, and are most likely seen in cases which have had a septicaemia either from furunculosis or some septic wound. In a few cases these organisms are found coexistent and when found together are extremely resistant strains. Several other organisms such as *B. alcalignis faecalis*, *proteus*, *pyocaneus*, influenza-like bacilli are of lesser importance. The streptococcus is rare in chronic infections. The gonococcus is not uncommon.

Much has been said about the specific pathology produced by these organisms. Theorizing we may say that, the colon due to its very slight motility more readily passes the tubules and is found in the pelvis of the kidney, while the coccus is surrounded by phagocytes which occlude the tubules and are more apt to produce a parenchymatous lesion. This must not be true; because the colon is much the more frequent visitor in the urines. Much also has been written regarding the course of certain infections pathologically. Most all infections produce stenosis somewhere along the tract, either at the uretero-pelvic junction resulting in a dilatation of the pelvis and calyces; or affecting the circulation, producing an infarction with a small pelvis and destruction of the kidney substance. If the obstruction comes at a lower point, we have a dilated ureter, pelvis, etc. Still further down the tract, we find a constriction at the vesical orifice, often seen in the male, but rarely in the female. Once obstruction has been established a spontaneous disappearance of the organisms is almost impossible. Stasis means a continuation of infection. Behind constrictions one always finds dilatation of the uniferous canals. This dilatation may extend from a stricture of the urethra to any portion of the tubules which lie beneath the capsule of the kidney.

There is then no specific pathology produced by a specific organism. We see a pyelitis, a pyone-

phrosis, pyelonephritis, and a perinephritis with all the infections. The course which an infection takes depends on three factors two of which we at the present time exercise little control; first, the virulence of the organisms and second, the resistance of the human being; the third factor being obstruction which we can control to a large extent. We are not going to entirely control our kidney infections and conserve the kidney until we can gain some control over relative resistance and susceptibility of bacteria. Typhoid, diphtheria and scarlet fever are within this control.

The recent work of d'Herelle is apparently a step in this direction. I refer to the bacteriophage. This subject seems almost like a myth, yet we have a something, call it phage or what not, which causes a lysis of organisms. It is specific in its action; there being a special phage for certain strains of colon and staphylococci. We can grow this phage as one would grow a culture of *B. coli*. We can increase or diminish its resistance and activity—but we cannot see it. The broth cultures remain perfectly clear. Silver nitrate and mercurochrome destroy it when introduced for antiseptics into the urinary tract.

The research with this phenomenon in our clinic has not progressed very far, yet we have made several very interesting observations on the colon bacillus and are now working with the staphylococcus. Over two hundred examinations of kidney urines have been made for the presence of bacteriophage. In uninfected patients the phage is absent. In colon infections its presence can be detected in 22% of cases. In patients suffering from an acute pyelitis or pyelonephritis a virulent phage with a susceptible organism is found. In a chronic infection the phage is absent or present in such small quantities or is of such low virulence that lysis does not occur. The organism is found to be non-susceptible or resistant. We have followed several cases from the acute to the chronic state and find a phage changing from one of high virulence when the patient has elevation of temperature to one of low virulence when the patient has a normal temperature. The organism on the other hand has apparently changed from a susceptible to a non-susceptible type. We have been able to grow the phage and to activate it for a certain colon strain but are not ready as yet to report our results with treatment.

The pathways of renal infection have recently been attacked with renewed vigor. There are four routes by which a kidney may be infected—hemogenous, lymphatic, ascending and direct. The direct infection from some adjacent organ is not difficult to recognize. The ascending route is a rare road for organisms to follow. The work of Graves in Boston shows that it can take place, but our many cystograms fail to show regurgitation a common condition. We see regurgitation in tuberculous up the uninfected side without evidence of infection. If this was a common route, we then should be able to demonstrate this method of infection more often. The blood stream has been for a number of years the popular route of renal infection. Certainly there is no doubt of its occurrence and probably with great frequency, too; since, organisms can be demonstrated in the blood stream and urine of patients. The infections from the teeth, tonsils, sinuses and upper extremities are probably blood borne since there are no direct lymphatic channels to the kidney.

Recently there has been a tendency to recognize the lymphatic channel as a more probable route in certain conditions. The work of Walker and Franke on "Ascending infection of the kidney" and several other workers, Thiele, Embleton, Blandini, Eisendrath and Schultz, and Biedl-Rovsing show that infection can readily occur in the kidney via the lymphatic route from the urethra, bladder, prostate, vagina, cervix and lower bowel. The lymphatics lie along the ureter with efferent vessels to the capsule of the kidney. I dare say that if we survey the history carefully we may determine in each case the pathway of the infection. Certainly infections of the lower urinary tract and the external and internal genitalia of both sexes are likely foci for kidney infection via the lymphatics rather than by the blood stream. The gynecologist sees many kidney and bladder infections. Is there any history of septicaemia? Rarely—but that patient has been catheterized or has been treated for a chronic pelvic inflammatory disease. The male usually shows some epididymitis or prostatitis—either by palpation or from the expression of gland secretion. Many infections in the female begin during pregnancy when stasis of the ureter occurs and the bowels are sluggish. Since it has been estimated that *B. coli* are found in 11% of the urines of constipated in-

dividuals, we have two possible conditions conducive to kidney infection; bowel constipation with infection of the kidneys by way of the lymphatics and stasis of urine in the ureters and kidney pelves.

The finding of organisms and pus periodically in the urine indicates that the patient has a chronic focus of infection for the kidney and that there is probably no obstruction to the outlet. The persistence of organisms on the other hand is indicative of stasis somewhere. The mechanics of the outflow of urine must always be kept clearly in mind.

The symptoms of chronic infection may be very vague such as a feeling of general malaise and a little headache. There may be occasional chills and fever without any local complaint. There may be gastric symptoms of nausea and loss of appetite. A very few urinary symptoms such as a little burning, smarting, frequency is the rule with the appearance of organisms and pus cells in the urine. Occasionally one finds the urine devoid of pus cells but organisms persist. Fresh urines should be examined for bacteria. These must be obtained at catheterization or by careful washing of the genitalia and collection of the very last part of the urine. This is very easy in the male and can be obtained in the female although less reliable. There are two common conditions in which no organisms may be found or even any trace of infection, namely: perirenal infection and unilateral obstruction. Occasionally a well walled off subcapsular infection may give a negative urine.

Hematuria is occasionally a symptom of renal infection. Renal colic is not an uncommon symptom. These colics may simulate renal colic from calculi but usually there is a dull pain with elevation of temperature. Pain when present is located in the costovertebral angle and not in the small of the back as the daily newspapers would like to have you know. Pain may be absent but physical examination will most always disclose tenderness in the costovertebral angle. X-rays in acute infection may be employed if you have facilities. The size, shape, position and contour of the kidney assist in the diagnosis.

Diagnosis

That a renal infection may simulate many diseases is a common text book statement. I doubt if this would be true if you included the examina-

tion of the urine for pus and organisms. If physicians would put less emphasis on searching for cells in the urine and would stain for bacteria, a greater percentage of cases would be diagnosed with less effort. The chronic cases should all be cystoscoped and a diagnosis definitely determined with functional tests, X-rays and pyelograms. In acute pyelitis and pyelonephritis the patients should never be cystoscoped in the height of the infection; because most patients show an exaggeration of symptoms when this is done. They should, however, be cystoscoped a week or two later if infection persists.

The acute cases with ureteral obstruction due to kink, stone or clump of pus or blood clot must ever be kept in mind. Pains in these cases are referred along the urinary tract down the ureter to the bladder, to the external genitalia and sometimes to the rectum. Nausea and vomiting are common in obstructed patients. Patients with drainage do not as a rule have severe gastric symptoms.

Treatment

The acute pyelitis cases without obstruction should have rest in bed—Fowler's position is preferable—forced liquids are essential. There is very little danger of patients drinking too much water, except in cardiacs where one must keep in mind circulatory embarrassment. I doubt very much if a patient will voluntarily drink water enough to produce the so-called water intoxication. For example: a patient with a colon pyelonephritis in the only remaining kidney drank voluntarily 16 quarts a day. He had learned from experience that he could prevent an acute exacerbation by this large water intake.

Patient should at least have five quarts per day and gradually increase this up to eight or ten quarts. An accurate record of the intake and output must be kept. Drugs are of little value in these very acute conditions. Water is by far the most potent agent we have, but patients do not take enough. Urotropin is of no value in the kidney; but may be of value in the bladder after the acute stage is past. Hexylresorcinol is claimed to alleviate some of the bladder symptoms; but so far has been a disappointment in controlling completely the infection. After these acute conditions subside cystoscopy is indicated in a week if urines do not become free from organisms.

Acute cases with obstruction will show a large kidney by X-ray. Calculi shadows may be outlined in 80% of cases. It is needless to say that stones causing obstruction should be removed. Acute pyonephrosis do well by draining for a few days with constant indwelling catheter and irrigation. If functional test shows a severe damage to the kidney a nephrectomy is indicated providing the opposite kidney compensates.

The pyelitis of pregnancy is included in the obstructed type because it has been shown definitely that in most of these cases there is a stasis with dilatation of the ureter and kidney pelvis due to pressure of the uterus. The treatment in these cases is rest in bed, forced water and if pain persists cystoscopy and ureteral catheterization. By draining the pelves thoroughly and irrigating with sterile water or physiological salt solution instead of attempting to instill mercurochrome or silver nitrate solution or any other drug for sterilization, one avoids a reaction on the part of the patient. Apparently drainage and mechanical cleansing of the pelvis are more efficient than "the would be sterilization" with drugs. We have treated a number of these cases systematically once a week and have had excellent results. Where infection persists, the patients without an exception have terminated their pregnancy without difficulty and continued their treatment as in chronic cases. So far we have not seen any cases in which we thought labor was induced by cystoscopy. It is fair to believe that many of the infections beginning primarily during the pregnancy may be completely controlled and thus prevent a serious damage to that kidney as is likely to happen if infection is allowed to continue without local treatment.

In the treatment of chronic pyelitis, water and rest are paramount. If the patient cannot go to bed, advice as to regulation of habits is of great value. Water should be drunk in large amounts, four to six quarts per day. Strictures or obstruction released. Ureters should always be dilated whether a definite stricture can be demonstrated or not. It is a general surgical principle that where there is a free outlet, infection will become minimized. Kidney lavage once a week with sterile water and instillation of 1% mercurochrome or 1% silver nitrate give good results. Occasionally, it is necessary to use 2% solutions. The infection in these cases is maintained by the

submucous tissue or by small granulomata. The latter are best treated with silver nitrate while the former are better treated with mercurochrome because it has been shown that mercurochrome penetrates even to the kidney capsule. We of course do not know which of these conditions persist in cases without obstruction; so that the treatments are alternated weekly. Forty per cent of these cases are bilateral, 35% right and 25% left. We have been able to clear up all the acute and chronic pyelitis cases with the exception of three or four intractable ones. In these we can control their symptoms but the urines still show a few organisms.

In acute pyelonephritis the patients are treated similarly to those of acute pyelitis. Children with severe infection are kept in bed until the albumin, and casts disappear. Cystoscopy under gas anaesthesia with renal lavage is carried out as in adults. The chronic types of this disease respond to treatment with ureteral dilatation and renal lavage. The function can be improved; but as far as completely clearing the kidney of infection we are not able to do it in but few cases. Fortunately only 35% are bilateral. In unilateral cases where there is moderate infection with considerable damage, a nephrectomy has been done with gratifying results. We have had two cases of streptococcus pyelonephritis in which the infection has entirely cleared with lavage. We have not tried intravenous drugs in pyelonephritis as it seemed contraindicated.

The pyonephrotic cases show ptosed kidneys or obstructed ureters or both. If the opposite kidney is not infected and has compensatory function a nephrectomy is done. If the only kidney is pyonephrotic or the disease is bilateral as is sometimes the case, conservative measures insure the longest existence. The symptoms in these cases can be controlled with cystoscopic treatments; but they are ineffective from a curative standpoint. The patients respond to the treatment. Their general condition improves, their renal function is elevated and their excess blood nitrogen disappears. One may expect a recurrence of symptoms if a rigid routine of large intake of water and an occasional renal lavage are not carried out. To prophesy the future of these patients is a difficult task as some show remarkable resistance to infection.

The pendulum of kidney surgery is swinging towards conservation of the renal tissue. The question of doing a nephrectomy in unilateral pyelonephritis depends on the discomfort of the patient and whether that kidney is a focus for infection for arthritis or some other remote lesion. In unilateral pyonephrosis which has one-third or one-half its function we hesitate to do a nephrectomy. Some of these cases respond to continuous catheter drainage, urethral dilatations and pelvic lavage. Kidneys which have a well developed, firm and fibrous pelvis do not contract because of the rigidity of the pelvis. If followed these will show a progressive destruction of renal tissue. The pyonephrotic kidney with cartilaginous-like perirenal tissue is best treated by two stage nephrectomy. The mortality from shock from nephrectomy even though the other kidney is compensating, is appalling. The kidney should first be drained and in 10-14 days removed. In unquestionable unilateral complete destruction of the kidney, a nephrectomy is indicated providing the general condition of the patient is compatible for a major operation.

The bilateral infections demand the greatest surgical consideration for conservation of tissue. If complicated with stones in both kidneys, the better kidney should be operated upon first. These kidneys should subsequently be irrigated and the tract made free from any evidence of urinary stasis, otherwise we see recurrent calculus formation and continuation of the infection which is found later to produce very low functioning kidney either of infarcted or pyonephrotic type. Pyelotomies should hold preference over nephrotomies. The incisions of the pelvis heal more readily if made on the posterior surface. They should be sutured whenever possible and be reinforced with a small pad of fat to prevent leakage of urine. The nephrotomies should either be packed or be sutured parallel to the pyramids as sutures transversely through an infected kidney result in almost a complete destruction of the functioning tissue by obstructing circulation. The treatment of the acute infections such as perinephritic abscess, or true parenchymatous abscess and fulminating renal infections are wholly surgical.

Summary.

The infected kidney demands greater consideration by all branches of the profession. The ana-

tomic lesion with its physiology and pathology can be ascertained from the history, physical examination, fresh urine examinations for infection, total two hour and fractional 'phthalein tests and the X-rays. Cystoscopic and radiographic examinations are necessary to complete the detailed diagnoses and should be done in all cases except the primarily acutely infected ones.

The two main routes for kidney infections are the blood stream and the lymphatics. The former is the most likely when there is a focus of infection in the trunk and upper extremities and the latter when there is a definite demonstrable lesion in the genital tract or a history of obstipation.

The treatment of kidney infections is greatly facilitated by internal hydrotherapy and the relief of the urinary tract of any mechanical obstruction. The acute pyelitis cases respond to rest in bed and forced water to 6, 8 or 10 quarts per day. If infection does not clear, cystoscopy with ureteral dilatation and renal pelvic lavage are indicated. Drugs are over rated in their value for urinary infection therapeutics. Surgery offers the best remedy for kidneys which are practically destroyed; otherwise they should be treated with conservatism. The pyelonephritis cases respond to the rigid treatment as outlined, but are very unsatisfactory as to ultimate results. The advancement for future treatment for these intractable cases lies in disclosing the mysteries of resistance and susceptibility of the infecting organism.

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DISCUSSION

Dr. James A. McGann: We are very grateful to Dr. Deming for his paper tonight. I was very much interested in the statement that one may find a great deal of pathology in ureters and kidneys

with rather negative urinary findings. In late years on the gynecological wards of the Rhode Island Hospital we have been very careful in classifying back pain in women. In June of this year I reported a rather lengthy series of cases with pyelograms which had been observed with practically negative urinary findings but with suggestive backache. Checking up on these cases with backache more carefully I was astounded at the great number which presented advanced pathology where in the past I know we would have hardly suspected it.

Dr. E. Stone: I was interested in the way Dr. Deming brought out the importance of stasis as a cause of upper urinary tract infection. I would like to refer to two types of stasis which is not usually recognized and of which I saw several cases during my recent house service at the Rhode Island Hospital. The first comprised four cases all of whom had had large tubo-ovarian abscesses dug out of the pelvis from 6 to 28 months previous to their second admission at which time they suffered from ureteritis or pyelitis dependent upon contraction of the lumen of the ureter where it lay tangent to the abscess. The second type was made up of two cases in which a marked cysto-coele caused a stretching and bending of the lower ureter to such an extent that the normal intermural constriction was exaggerated and almost an acute kink was formed just beyond the bladder wall. The result was dilatation of the ureters and infection of ureters and pelvis.

Dr. J. Edward Kerney: Dr. Deming's paper is of considerable interest from several standpoints. In the first place, the foremost position of the phenol-sulphon-phthalein test has yet to be surpassed for practical and accurate estimation of renal function, especially if counterbalanced by blood chemistry. However, the technique must be accurate in the exact amount (1cc.) given and the method of administration. To my mind the intramuscular administration is nowhere as accurate and as definite as the intravenous route, and whenever possible the phthalein should be introduced intravenously.

The accurate determination of renal infection depends upon most delicate technique throughout,

and any single break in such technique will give indefinite and unreliable information. The findings in such cases definitely determines the nature of further procedure, and one should attempt no surgery of the tract unless all findings point to a definite pathological condition. It is far wiser to check up by repeat examination should any doubt exist. Especially is this true of T. B. cases. Tubercle bacilli may be found in the urine with no definite pathology, having filtered through the tubules, while on the other hand no tubercle bacilli may be found, and yet a vast amount of tubercular destruction may have already occurred.

I should like to hear what experience the speaker has had with the comparatively new urinary antiseptic hexyl resorcinol. Personally I have found this drug of inestimable value in many chronically infected bladder cases, especially of the colon mixture type, and have observed many post-operative prostates, having a prolonged bacilluria and pyuria clear up absolutely and remain so cleared after the administration of a proper amount of this drug for a moderate period, varying of course with conditions present.

MEASLES IMMUNIZATION.*

By H. P. B. JORDAN, M.D.

PROVIDENCE CITY HOSPITAL

A recently published encyclopedia says of measles: "It is usually a very mild disease, requiring only an aperient saline—liquid food and keeping in bed for a few days. It most frequently attacks children, though sometimes it occurs in old age, as in the case of King George III and Otho, ex-King of Greece, who died of this affection." They draw a pretty picture of this disease, though the picture is hardly true to life—as anyone who has become at all familiar with measles will agree. Unfortunately the encyclopedia strengthens a popular misconception of measles. There are roughly ten thousand deaths yearly from this disease in the United States,

*Read before the Rhode Island Medical Society, December 3, 1925.

a number greater than results from scarlet fever, which is a much more universally dreaded malady. The majority of deaths occur in children under six and by far the greater proportion of these occur between the ages of one and three years. In the Providence City Hospital during the past fourteen years 1228 cases of measles uncomplicated with other disease, have been treated. One hundred thirty-four deaths have occurred, a fatality rate for all cases of 8.2%, the age distribution of these deaths being as follows:

Ages	Living cases	Dead cases	Fatality
Under 1	70	18	20.5
1	132	42	24.1
2	131	25	16.0
3	132	9	6.4
4	124	4	3.1
5	103	2	1.9
6	110	1	0.9
7	66	3	4.3
8	66	0	.0

From 9 to 19 years of age 141 cases occurred with no deaths.

From 20 to 69 years of age 153 cases occurred with five deaths, a fatality rate of 3.2 %.

Twenty-two deaths under one year of age, fifty-three deaths one year of age, thirty deaths two years of age, thirteen deaths three years of age. Eighty-eight per cent of the deaths occurring in children three years of age or under and over ninety-six per cent of the deaths occurring in patients under eight years of age, the remaining three and a fraction per cent occurring in adult life.

It is obvious that the greatest danger to life is under four years of age, and very slight after the eighth year. Naturally the question arises: What can be done to save the lives of these children? The answer is very simple: Prevent them from getting the disease until after the danger point has been passed. How will we accomplish this? Easily—don't allow these children to become exposed to measles. How? by means of quarantine. Easily said but difficult of accomplishment. Anyone with any experience with measles will freely admit that quarantine is practically valueless, this being one of the most infectious diseases we handle. Usually any one definitely exposed who has never had this disease, will contract it, in spite of any precautions taken—occasionally the exposure is not very

intimate—as evidenced in our wards at the City Hospital—a patient fifty or seventy-five feet from an acute measles, developed the disease, certainly without direct contact, and probably not through the air, most likely through indirect contact, the medium of contact being the doctor or the nurse. A child cannot be brought up in a glass case and never exposed to another child in these days of feverish activity—an unwise procedure if it could be accomplished, as it is through contact with others that we pick up small infections from time to time, which tend to build up an immunity to large doses of the same infections. And here we have the practical solution we are searching for, immunization of the child against the disease.

Dr. Charles Herman of New York reported active immunization against measles, in 1915. Noting the fact that measles was rather rare under six months of age, he attempted to immunize forty infants against this disease. By swabbing the nose and throat of acute measles cases and transferring the swabbings to the nasal mucosa of these infants, he was able to cause a very modified form of the disease in some cases, though in many others no distinct reaction occurred. These infants generally developed an immunity as evidenced by their failure to develop the disease, when after entering the second year of life, they were exposed to measles again and failed to develop the disease. This method is reasonably safe in infants under six months of age because of their relative immunity. In older children we have no definite assurance that attempted active immunization will not result in death.

Early in 1917, Dr. Charles V. Chapin suggested that a passive immunity might be developed by the use of convalescent serum, basing his theory on the successful work that had been done with immune sera in immunizing against hog cholera. To Drs. Dennett L. Richardson and Hilary Connor of the Providence City Hospital belongs the credit for the first work done along this line. Their article read before this society on March 7, 1919, representing work done over a period of two years, seemed to show that immunization could be accomplished by using convalescent serum, and encouraged us to carry on the work up to the present time.

Nicolle and Conseil of Paris reported on the

same kind of immunization done independently but concurrently, in France. These two articles have done wonders toward stimulating other workers to follow the same line of endeavor. Many excellent articles have emanated from all civilized countries, since this time. I just mention this, to show that the work is generally accepted and considered of value. I present no bibliography of these numerous articles but they can be found very readily in current medical literature.

Realizing that contact is much more intimate in home life than in the hospital an effort was made to try out this form of immunization in families of several children, where one member already had measles, and the others had been exposed. A considerable amount of serum has been furnished to physicians, to be used in suitable cases in private practice. Our great difficulty has been in getting written reports of the cases, though verbally the physicians have reported uniform success. I take this opportunity to thank Drs. Maurice Adelman and Henry Gallagher for carefully written reports on all serum used, which was furnished by the Providence City Hospital.

In a few cases whole blood has been used, usually ten cubic centimeters. In a family group, where the donor is at hand, I feel sure that this method is the most practicable. On the other hand whole blood is less easily preserved than serum, so ordinarily it is better to use serum, as it can be preserved for long periods of time.

Scrum Preparation: Blood is withdrawn under aseptic conditions much the same as for a Wassermann test. According to the age of the patient, we remove from 30cc. to 500cc. of blood, allow it to coagulate in the refrigerator for several hours, and decant the serum. This is now being placed in vials containing five or six cubic centimeters. It is inactivated at 56° C. for thirty minutes and if kept more than a week is again inactivated for the same period before use. Some serum has been kept over a year with the addition of .75% trikresol for a preservative, seeming to hold its potency during this period.

The patients selected for bleeding have suffered frank attacks of measles, have negative Wassermann tests and are over the acute symptoms of the disease. Some have been bled as soon as temperature has reached normal. Usually they are

bled eight or ten days after the appearance of the rash. One serum used was taken from a patient who had suffered an attack of measles ten years previously. In the résumé of cases treated, a serum referred to as a six, seven, eight-day serum, etc., means a serum obtained six, seven or eight days after the appearance of the rash.

Patients Immunized: These cases are placed in two groups. Group No. 1 are cases occurring in private homes. Group 2 are cases occurring in the hospital.

Group 1.

A local family referred by the Health Department. Three members convalescing from measles. Three had not had the disease, though exposed. The two younger ones, given each 8cc. of six-day serum, on the eighth day after first exposure, did not develop the disease. The infant did develop bronchitis, which may or may not have been due to measles. The other had no symptoms. The third which received no serum developed measles.

A child in a group of five developed measles four weeks ago. The other four, all intimately exposed continually, each received six cubic centimeters of eight-day serum. None developed measles.

R. I. developed measles May 14, 1924. Seen for first time on the 15th. Two children living down stairs, who had been in direct contact with measles case until development of the rash, were each given 10cc. of serum on the 16th. They did not develop measles.

C. S. developed measles July 16, 1923. On the third day of the disease whole blood was taken from this patient and injected into a sixteen-months-old, sickly child. Three days later the infant developed Koplik spots and measles rash. The rash lasted but twenty-four hours. The temperature never rose above 100. by rectum. No complications or sequelae.

A. J. R., age 5 years. Developed measles Aug. 12, 1923, exposing two other children. One age 2 years, the other 9 months. Fourth day serum in 10cc. amounts was given to each on the eighth day.

M. G., No. 15018, developed measles Jan. 19, 1921, exposing nine patients who were each given 6cc. of nine-day serum on the 7th day after first exposure. None developed measles.

Nov. 16, 1920, Miss C., a night nurse, developed measles, closely exposing fourteen non-immune patients. Each one was given 8cc. of eight-day serum on the eighth day of exposure. None developed measles.

On April 23, 1923, Miss H. developed measles, exposing seven non-immunes. Each one was given 8cc. of six-day serum on the seventh day after exposure. None developed measles.

D. N., No. 14221, given 15cc. of serum on May 4, 1920, six days after first exposure, and seven days after last exposure. Did not develop measles. She did develop definite measles Jan. 29, 1921, eight months after being immunized.

L. C. exposed two non-immunes in Ward C, No. 12926 and No. 13886. Each given 10cc. nine-day serum on the seventh day. Neither developed measles.

No. 13896 was also exposed at the same time, but was given no serum and did develop measles after incubation period of fourteen days.

E. B., No. 14264, admitted for measles and was exposed to two patients with fresh measles for about twelve hours before a diagnosis of urticaria was made. Given 15cc. of six-day serum on the fourth day of exposure, and was kept continuously with these cases. Did not develop measles, but the mother notified me thirteen months later, when he developed the disease, after known exposure.

A child admitted to the hospital with chicken pox. She had also been exposed to a sister at home with measles. The sister was bled on the 6th day after the first sign of illness, four days after the appearance of the rash. 15cc. serum given to child in hospital. Has never developed measles, though exposed two different times.

No. 13952 exposed to measles March 8, 1920. Given 15cc. of five-day serum on March 10, 1920. On March 23, was suspicious of measles, having a mild rhinitis with a rise in temperature, though no other symptoms appeared.

No. 13606 and No. 14334 exposed July 18 to 22, after first exposure. They did not develop measles.

N. L. developed measles Oct. 11, 1925. Two younger children were each given 6cc. of six-day serum on the same day. Neither developed measles.

A. G. developed measles March 3, 1925. His cousin, two years old who lived in the same apart-

ment was given 10cc. six-day serum on the fourth day of exposure and did not develop measles.

B. N., 9 years old had measles rash appear Jan. 28, 1925. His temperature was normal within twenty-four hours and blood was taken for the preparation of serum the same day. Two brothers two years and four years of age were each given 12cc. of this serum on the same day. Neither developed measles.

A child age 12 years developed measles May 16, 1923, exposing three younger children, who had never had measles. Each given 6cc. of 7-day serum on the sixth day of exposure. None developed measles.

A child coming from Boston to visit developed measles rash on the third day of contact with five children. All were given 5cc. of 10-day serum on the eighth day of exposure. None developed measles.

Résumé.

Twenty-four cases intimately exposed to fresh measles during the entire course of the disease, each received from 5cc. to 12cc. of convalescent serum, from three to eleven days after the first exposure to measles. None developed the disease, except the one who received the serum during the pre-eruptive period, though the disease was probably somewhat modified by the treatment. From the fact that one infant developed bronchitis we must consider the possibility that he had a mild unrecognizable attack of measles, though the evidence is not enough to justify the diagnosis.

Group 2.

J. D., 14877, developed measles Nov. 17, 1920, in the hospital, exposing one nurse and three patients, 14865, 14859 and 14864, all non-immunes. Each given 8cc. of six-day serum Nov. 24, 1920. None developed measles.

L. C. developed measles in the convalescent ward in C., exposing four non-immunes, 13896, 12926, 13243 and 13886. No. 13896 was not immunized, but kept as a control. The other three were each given 10cc. of ten-day serum on the 6th day of exposure. None developed measles except No. 13896 who developed measles March 31, 1920. Each given 10cc. of ten-day serum on July 28, 1920. Neither developed measles.

Six patients exposed to measles in convalescent ward Jan. 15, 1921. Five were given 15cc. each on Jan. 22, 1921. The sixth was given no serum,

having been exposed and immunized two months previously. None developed measles.

S. P., No. 15120, in room for 18 hours before measles rash appeared in room mate. On the third day after exposure was given 15cc. of six-day serum. She was not again exposed to measles but eighteen days after the serum and twenty-one days after exposure, developed what we agreed was an extremely mild attack of measles, with temperature of 100. No suggestive symptoms, but Koplik spots and a suggestion of rash.

No. 15091 exposed to measles Jan. 20, given 15cc. of serum Jan. 26, 1921. Did not develop measles.

R. C., No. 15116, exposed Feb. 10 to 13, 1921. Given 12cc. of ten-day serum Feb. 15, 1921. Did not develop measles.

A. S., given 15cc. of eight-day serum eight days after exposure. Did not develop measles.

No. 15366 and No. 15531 exposed May 9, 1921, each given 10cc. serum May 13, 1921. Did not develop measles.

Three patients each given 8cc. of serum on the sixth day. Did not develop measles.

Baby M., No. 17575, exposed at a local orphanage Jan. 14, 1921, again to three fresh cases from Jan. 15 to 23. On Jan. 23, 1923, was given 7cc. of eight-day serum. Did not develop measles.

C. S., No. 17577, exposed to measles in day nursery Jan. 14, 15, 15, 1923, and put in unit with two fresh cases of measles. Kept in contact with them and given 7cc. serum Jan. 23, 1923. Did not develop measles.

W. D., No. 17702, exposed Feb. 10, 1923, to No. 17714. Given 6cc. of four-day serum Feb. 16, 1923. Did not develop measles.

Child of local physician had Koplik spots Jan. 28, and rash on Jan. 30, 1923. Second child received 12cc. six-day serum Feb. 3, 1923. Did not develop measles.

V. A., No. 17751, exposed to 17747 Feb. 17, and on, and again to C. G., No. 17769, Feb. 21, 1923. Given 10cc. six-day serum on Feb. 23, 1923. Did not develop measles.

A. G., No. 17987, given 18cc. of serum April 13, 1923, seven days after first possible exposure. Did not develop measles.

J. F., given 6cc. of ten-day serum seven days after exposure. Did not develop measles.

F. A., No. 17867, given 10cc. of six-day serum five days after exposure. Did not develop measles.

P. S., No. 17921, received 10cc. of ten-day serum April 12, 1923, seven days after exposure. Did not develop measles.

M. B., given 10cc. of ten-day serum March 15, 1923, seven days after exposure. Developed mild measles April 27, 1923, following a second exposure April 13, 1923.

C. L., given 8cc. serum Feb. 15, 1923, nine days after exposure. Developed measles Feb. 21, 1923.

H. C., No. 18065, and J. S., No. 18055, and A. G., No. 18074, given 6cc. of six-day serum on the seventh day after exposure. Did not develop measles.

Résumé.

In group 2, seventy-two patients were immunized with amounts varying from 6cc. to 18cc. of serum, varying in time of removal from convalescent patient from one day to ten years after exposure. The most of the serum used was six to eight-day serum.

Sixty-nine did not develop measles.

One did develop measles, a very definite attack. This patient received the serum nine days after exposure, and this was probably too late to ward off the attack.

One developed a mild rhinitis, which was possibly measles.

One developed a very mild measles twenty-one days after exposure.

Three cases used as controls (not given serum) developed measles.

One patient immunized developed measles eight months later, after a second exposure.

One developed measles thirteen months after immunization following a second exposure.

One developed measles after immunization with 10cc. of ten-day serum after a second exposure six weeks after the immunization.

Conclusions.

1. That measles convalescent serum given in 5cc. or 6cc. doses intramuscularly, within six or eight days after exposure, will prevent the development of this disease.

2. That the serum is of greatest value, when obtained shortly after an attack of measles.

3. That the resulting immunity is not likely to be permanent.

4. That a considerable saving of life can be accomplished by means of its use.

HARMON P. B. JORDAN, M.D.

Assistant Supt. City Hospital

December 3, 1925.

Discussion.

Dr. Richardson: Dr. Jordan has covered the subject very well. There are two or three things I want to say.

One is about the difficulty in getting enough serum to immunize a large number of children during an epidemic. As you realize, most of these patients are small children and consequently we are not often allowed to get a child bled. Most of the serum is taken after the acute process has subsided, and usually in the second or third week. The Health Department hopes to save some lives. Most deaths are under 4 years, not very common at 6 to 8 months, for the disease does not often develop at that age. It, therefore, is difficult to get serum from this class of patients. Serum from persons who had measles several years ago is not very useful. We have not had much experience with such serum, as noted by Dr. Jordan. Some work has been done along this line in other countries and in other parts of this country, but not enough to come to any definite conclusion. Serum from a person who had measles several years before has not sufficient antibodies to always resist the disease. However, even if this serum does not immunize, when used it may lighten the disease if given in large doses.

Another point about the use of serum. Serum at least does modify the disease when given at any time, but to fully prevent the disease it is necessary to give the child the serum during the first week of the incubation period. It is not always easy to tell when the first symptoms appear, except by dating it from the rash. If a child with measles has a rash on Dec. 16th, then the first possibility of infection was four days before; in other words four days before the beginning of the eruption the patient is infectious. Usually infection takes place the first day of the disease and certainly by the second. If serum is given to an exposed child seven days from the first symptom, or three days from the beginning of the rash in the infecting case, it will nearly always prevent the disease. If

given during the next three days it may prevent it, or should render the attack lighter. If given after symptoms begin it seems to have little or no influence.

As an immunizing agent convalescent serum is the best and only one available at the present time. Some day an artificial agent may be developed which will be useful and much more available than is convalescent serum.

THE DEFEAT OF THE STREPTOCOCCUS IN MEASLES, ERYSIPELAS AND PUERPERAL SEPSIS

When the announcement was made that Drs. George F. and Gladys Henry Dick had shown that scarlet fever is a disease similar to diphtheria in that the streptococcus elaborates a toxin which is the causative agent, medical philosophers predicted that other investigators would soon reveal similar causative agents for related diseases. It appears likely that these predictions are to be successfully realized within the current year. In this issue of *The Journal* appears the report of the investigations in measles by Drs. Ferry and Fisher of Detroit, who have elaborated a skin test for measles with toxin prepared from an organism found in the blood of patients suffering with this disease. This organism appears to be the same as that first described by Tunncliffe. Ferry and Fisher emphasize the fact that their organism is aerobic, whereas, the Tunncliffe organism is also aerobic in cultures of the second generation. Experiments are also being made by other investigators with streptococci associated with erysipelas and puerperal sepsis, and preliminary reports of their work indicate the possibility of similar success. Moreover, other organisms than the streptococcus are now being studied with relation to toxin production, notably the staphylococcus and more recently the tubercle bacillus. If these investigations are confirmed, with the widespread acceptance accorded to the Dick discoveries, it may well be that the present decade will pass into history as the one that saw the streptococcus defeated by medical science.—*Jour. A. M. A.*, March 27, 1926.

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EDITORIALS

OF THE MEDICAL SOCIETY

The State Medical Society is the most useful organization that physicians have. It deals largely with problems that are local in character and which are sufficiently near to the physician to demand his immediate interest. The organization further is sufficiently small to permit every member to feel that he is a part of it and to take active

part in the business before the society. The Rhode Island State Medical Society answers these qualifications particularly well, since physicians from every part of the state can very easily attend the meetings and give the organization an authoritative character. At the same time the number of the members does not make it unwieldy. One factor, however, has somewhat obstructed the value of these meetings, namely a failure on the part of the members to thoroughly understand the laws which govern the procedure of the organization and by which effectiveness is increased. This

failure to know the procedure has resulted occasionally in misunderstanding and loss of time. Worse still, clarity of the issue has often been obscured. Such a condition could be nearly eliminated were each member to make it his duty to know more about his own organization. Time could be saved; clearness increased, and confusion avoided. The result would greatly increase the effectiveness of the most useful organization of the medical profession with only a small amount of labor on the part of each physician. In the future each new member might be supplied with a copy of the constitution and by-laws of the Rhode Island Medical Society.

THE ASEPTIC CONSCIENCE.

The young surgeon who served an apprenticeship under a surgical preceptor led a happy but strenuous life. He took raw catgut, prepared and sterilized it, cut it into proper lengths, sealed it in packages and sterilized it again. He cut and rolled bandages, obtained dry plaster and crinolin and turned out the plaster of paris bandages. He sterilized sheets, towels, sponges and dressings. He chose and sterilized the instruments, draped and prepared the operative field and assisted at the operation. If asepsis was incomplete and an infected wound resulted, he was responsible. In the course of this training, he developed what Gerster called "The Aseptic Conscience." The principles of asepsis became so instilled into his being that they were followed automatically.

The hot-house training of the highly endowed medical school does not succeed in providing a satisfactory substitute for the aseptic conscience which developed naturally in the surgical apprenticeship. Astonishing breaks in aseptic technic result. Wound infection is attributed to faulty cat gut which has been prepared at some point too distant to be reached by criticism. The surgical assistant is freed from responsibility. The visiting physician submits sometimes with ill grace to don a protecting robe before entering the surgical operating room and must be kept from contact with the operating team and away from sterile instruments and dressings by ropes and bars. The aseptic conscience is no longer active. Its loss must be recognized and provided for.

THE COUNTRY DOCTOR.

Very much has been written during the last few years about the vanishing country doctor, and many are the remedies which have been offered to solve the problem.

Strictly speaking it is not a new problem although for some ten years it has been rather more acute. Country people have never been provided with the medical service which they have deserved, or were able and willing to pay for. Any one who has been reared in the country remembers the constant fear that people have that a physician cannot be reached in an emergency. They realize, also, that the country doctor is too often not as capable nor as well trained as he ought to be. In this country the rural population, as a whole, is very intelligent and well educated, and they are fully aware that the medical service available to them is not of as high a standard as that furnished in cities and everything the country doctor does is scrutinized very carefully.

There has always been a certain percentage of well-trained physicians in rural districts, men who would compare favorably with the best in the cities, but there has been too few of this type. The explanation of why well trained men have avoided the country is obvious. The long, hard drives over roads at times nearly impassable; the isolation from the class of people with which physicians like to associate; and inability to keep up with medical progress; all have discouraged even graduates reared in the country from undertaking such a hard life.

About 1908 a concerted effort was made to weed out the poor medical schools, and higher standards of admission were established. As a consequence the number of students dropped from about 25,000 to about 15,000 in 1915. Necessarily a larger percentage of graduates settled in cities and the country districts have suffered.

As a matter of fact the rural districts should be supplied with physicians of ability and excellent training, for they have to meet all kinds of emergencies and are obliged to treat a great variety of disease conditions. In the city a poorly trained man can always get help at short notice, but not the country doctor.

There is evidence that conditions will adjust themselves. Already the number of medical stu-

dents is increasing. The use of the automobile and the construction of good roads all over the country will make it possible for a physician to carry on his practice with much less hardship and at the same time be able to cover a larger territory. The automobile and radio are drawing people away from the city. And what is of great importance, there are springing up in small cities and even large towns small hospitals in which he can treat many of his patients. In the hospital he will have equipment and means of rendering nearly as efficient treatment as can be obtained in larger city hospitals. That these small hospitals will continue to multiply, there is not a doubt. The rural residents, because of their high degree of intelligence and appreciation of good service will help to support and patronize them. The principal expense will be for construction and equipment because most patients will be able to pay their way.

There is still another movement destined to make country practice more attractive, and that is the increased opportunities for post-graduate instruction. In Pennsylvania, for instance, clinics are being held in a considerable number of cities throughout the state and supervised by educational institutions in Philadelphia. And so it is fairly evident that the conditions which have kept good doctors from the country is in the process of self solution.

It is not unreasonable to predict that a larger number of medical graduates will select rural districts where they can escape the severe competition in the city, where it is possible to earn a better living in a community where a physician is always held in respect and esteem, and at the same time be able to keep up with his city brother.

THE BUSINESS OF MEDICINE

By the business of medicine may be meant the economic return of the medical man's labors. The necessary needful whereby he may support himself and his family, create an estate for their future support in case of his prior death where-with he may satisfy and the various obligations which belong to his personal and professional lives.

That a change has taken place in the relation

between the public and the physician is quite as apparent as that change which has come about between the public which owes and those which this public owes. This is not debatable, it is axiomatic. With the advent of the automobile, the tremendous increase in extravagance of the present day, together with the high cost of living and the cost of high living, people have in a very great measure lost their sense of obligation and postpone their just and honest debts as long as possible if not indefinitely. This condition of affairs is evident to anyone who gives credit, and there is no occupation, trade, profession or calling which gives credit as readily as does the medical profession. Admitting that ours is a noble profession and that its first aim is a life of busy usefulness, nevertheless the above considerations must be satisfied if the doctor is to live and die free from debt. These conditions have been met by various changes in the business world. Profits are in some cases so great that those who pay make good the losses for those who do not and in installment payments a very few payments begin to show a profit to the merchant. That physicians pay enormous profits for all their necessities is beyond question, and the only explanation possible is that which is equally the case in other lines of merchandise—profiteering.

The costs of physicians' supplies are absurd and unwarrantable and are in a large measure responsible for ever increasing hospital rates, the graft thereby being passed on to the poor and needy. X-Ray materials are beyond all sense and reason and simple apparatus placed in the class with instruments of precision. As long, however, as medical men are gullible enough to pay eight dollars and a half for a pair of scissors and two dollars for a knife that can be made and sold at a profit for, shall we say, fifteen cents, this sort of thing will continue. Even a benevolent and protecting government allows a charge of seven dollars a gallon for alcohol which can be made and sold at a profit probably for 40 cents. Theoretically one is led to believe that denatured alcohol is an acceptable substitute but it cannot be burned in a lamp without smoking, it is harmful to the skin and the profession is deprived of one of the very best antiseptics it ever used. Salvarsan is another valuable remedy from which countless

thousands were made by the promoters and with hardly a voice raised in protest.

A new class of professional workers has recently come into being, the salaried physician. He is either absurdly underpaid by the factories which employ him, or else is distinctly over paid in comparison with the work he has to do. When it is realized that a five thousand dollar salaried position is equal to a ten thousand dollar practice it will be seen that it is the practitioner who faces high expenses, a variable income and a life of hard labor often bordering upon hardship who bears a far greater burden than the salaried official who need have no equipment, has many of his expenses paid and ample time for study, reflection and recreation, with able assistants, who by the way, often do most of the real work, and who is responsible to no one or perhaps the man higher up.

Whatever progress may have been made in recent years there is in the mind of the rising generation but little thought of responsibility, of fair play or the duty of paying just and honest debts. For debt is in its very essence a crass violation of the spirit of fair play and of the golden rule. Again, with the increase of charity and philanthropy there has been an enormous increase in the pauper class. Those who are so mendacious as to depend upon charity for the whole or a part of their needs. The present day system of benevolence makes this very easy. The free clinic, the free almost everything relating to sickness together with public health is not only curtailing in a tremendous degree the sphere of usefulness of the so called family physician, but is making a race of paupers of our people and lowering their stamina and *morale* by taking from their sense of responsibility, obligation and pride. The activities of our school, district and industrial nurses by guiding cases into selected channels and by assuming responsibility which they should not assume is, in certain localities, a menace to the independence of those who should not accept charity and is furthermore much the practice of medicine as can be. It would be easy to multiply instances of interference with physician's orders by nurses, of the practice of medicine and surgery, of the urging of charity cases into certain professional hands, of the abuse of charity in our hospitals, and

the recommendation of certain specialists by various authorities.

Is anything being done to correct these abuses? There is not. They are on the increase as any busy physician will testify.

Another abuse to which attention should be called is the taking, at greatly reduced rates, of radiographs for the medical profession. The fault here is twofold, in the physician who sends his case to the hospital, and in the hospital which does the work. Many of these cases can easily afford the usual fees. No case should be admitted to a hospital X-ray laboratory which has not applied for hospital care in the usual way, through the house or out patient.

Now nothing in this should be so construed as to belittle the need of worthy and deserved charity, or the need of relief of the truly poor, but just glance over the benches of our out-patient departments and see the fur coats, go into the wards and see the laces, hunt up the homes and see the autos and radios and see how much of it is really needed and deserved.

SOCIETIES

RHODE ISLAND SOCIETY FOR NEUROLOGY AND PSYCHIATRY

The meeting of the Rhode Island Society for Neurology and Psychiatry was held Monday evening, April 12th, at the residence of Doctor Henry A. Jones, 506 Pontiac Avenue, Eden Park, R. I.

In the absence of the President, Doctor Arthur H. Harrington, the meeting was presided over by the Vice-president, Doctor Charles A. McDonald.

The program of the evening was: "The Insane Within Our Gates; a Narrative of Their Care and Treatment," Doctor Henry A. Jones; "Some Recent Studies in Manic-Depressive Psychoses," Doctor Charles A. McDonald.

Following the meeting Doctor Jones invited the Society to adjourn to the dining room where lunch was served.

GEORGE K. BUTTERFIELD, M.D.,

Secretary

HOSPITALS

PROVIDENCE CITY HOSPITAL

News Notes

Changes in the interne staff on April 1st were as follows:

Dr. Lambert Krahulik returned to Long Island Hospital, N. Y., as chief resident in the pediatric service.

Dr. Joseph Smith became assistant to Dr. Chapin in the Health Department.

Dr. Panos S. Dukakis from the Boston City Hospital and Dr. James H. Turner from Long Island Hospital, New York, began service on April 1st.

Every Wednesday morning at 12 o'clock a clinic is held for the resident staff. Any physician is welcome to attend these clinics.

COFFEE DRINKING BY THE AGED*

The human body with advancing age has a marked tendency to become more sensitive to stimulants such as caffeine, and the excitement of the nervous centers is less well borne in senescence than in the prime of life. With age comes increased nervous irritability and the need for more repose and sleep. The use of the stimulants coffee and tea by old people is, therefore, of unquestionable propriety.

Professor Oliver T. Osborne recently pointed out (*Medical Journal and Record*, 120 (1924), supplement, CLXIII) some of the dangers that are liable to accompany a tea or coffee habit in old age. He says: "The action of caffeine (on the aged) is to increase general nervous irritability, cause polyuria, and especially to stimulate the thyroid and parathyroids to abnormally increased activity, with the result of more nervous irritability and muscular irritability and trembling. Caffeine often raises the blood pressure, where such an increase of blood pressure is not needed." He states further that coffee and tea are likely to increase the production of uric acid and that this substance is liable to irritate the kidneys and cause

muscle and joint pains in old people. Professor Osborne is of the opinion that caffeine containing beverages serve no useful purpose in the case of the aged and that caffeine should be entirely avoided except in instances where the therapeutic use of the alkaloid is indicated.

Dr. Malford W. Thewlis, in the second edition of his book entitled "Geriatrics," calls attention to the increased susceptibility of old people to the stimulating action of tea and coffee. He urges a curtailment of the use of these drinks in senescence. The use of caffeine-containing beverages with the evening meal he considers very liable to interfere with sleep. Dr. Thewlis directs notice to the supersensitiveness which old people frequently exhibit towards certain drugs; he believes that the old rule that "children and the aged cannot stand large doses" is not without foundation. Ordinary observation shows that the aged are more susceptible to caffeine than younger persons. It is not at all uncommon to hear individuals past the prime of life say they can no longer drink coffee because it keeps them awake.

Even Professor Samuel C. Prescott, who made an investigation of the effects of coffee and came to the conclusion that it is harmless for the majority of adults, says that "many individuals find with advancing years that smaller quantities (of coffee) will suffice," thus conceding that people do become more sensitive to caffeine as they grow older.

It is generally known that caffeine stimulates the heart's action and thus tends to raise the blood pressure. While caffeine is a vaso-dilator as well as a heart stimulant, its dilating action upon the hardened vessels of the aged will be less effective than in the case of younger persons; hence the increased pressure due to the heart's action will not be compensated for by relaxed arteries, and the blood pressure will accordingly increase.

Finally it can be stated that in old age sedatives rather than stimulants, such as caffeine, are called for; old people should avoid the stimulants tea and coffee, not only because they are undesirable irritants of the nervous system, but also because they have a harmful effect on the blood pressure, cause excessive uric acid production within the body, and may, as Professor Osborne points out, produce abnormal activity of the thyroids and parathyroids.

*From the Mellon Institute of Industrial Research, University of Pittsburgh.

"ETHICS AND THE MEDICAL PROFESSION"

A few weeks ago *The Journal* considered editorially the physician of the future, noting that the practice of medicine is changing with the times. The entrance into medical service of corporations dispensing diagnosis and some treatment on a wholesale basis, and competing, perhaps unfairly, with the individual physician by means of uncontrolled newspaper advertising, has raised a problem that may to some extent menace the actual existence of the individual practitioner. In a consideration of medical ethics in the current issue of the *Survey*, Dr. Richard C. Cabot, himself intensely individualistic, although socially minded in his writings, comes to the support of such mechanized medical practice. It should be remembered that the editorial advisor of the *Survey* in matters of health is Dr. Haven Emerson, whose views as to the socialization of medicine are not entirely unknown to the widely read physician. That part of the code of ethics which concerns contract practice forms the major subject of Dr. Cabot's consideration of one trend in the relationships of medicine to the community. He condemns "lodge practice" unreservedly as being bad both for patient and for physician. He feels, however, that the factory physician, the mine doctor, the director of a union health center, the department store physician, and similar practitioners, while certainly doing contract practice and certainly competing with the private practitioner, do so to the great advantage of the public served. And he is unable to see much difference between such industrial practice and that of the corporations selling periodic physical examinations. Furthermore, Dr. Cabot has convinced himself that organized commercial service is better than that of the private physician. Apparently he is but little concerned with the present status of the individual physician, and perhaps even less concerned with the professional status of the physician of the future. It will, of course, be remembered that he was among the first and most vociferous proponents of group practice, again without any thought of the effects that such a system has on the development of the individual practitioner. While he argues for collective practice and a sort of socialized medicine, the code of ethics governing the medical profes-

sion gives him but little pause. Of course, it is "of interest," to use his own words, but after all not nearly so much of a force for ethical advance as intimate contact of medical men with other medical men "better than themselves, where, by osmosis, nobler habits of thought and action seep across from teacher to pupil, from chief to intern, from colleague to colleague without a word spoken on the subject." One is inevitably reminded of certain direct communications with the Deity which from time to time inspired prophets have claimed as their sole prerogative. Nevertheless, when some ninety thousand physicians are concerned, it would not perhaps be wholly wise to rely on the inevitable receipt and comprehension of such telepathic influences. — *Jour. A. M. A.*, March 27, 1926.

THE MODEL MANUAL OF THE VETERANS' BUREAU MEDICAL SERVICE

The standardization of laboratory procedure is difficult because of individual preferences in technic. The United States Veterans' Bureau has just issued a clinical bulletin¹ which is notable among laboratory manuals in its method of determining standard procedures. The work arose out of the need for a uniform, simple, sensitive Wasserman technic that would eliminate a maximum number of false positive reactions and that could be performed with reasonable accuracy by the average laboratory technician. After prolonged correspondence a procedure was adopted which, it is claimed, is sensitive, gives few false positives, requires but one antigen and is rapid of execution. The bulletin gives in concise, clear form everything that one who is setting up a Wasserman laboratory needs to know. It contains a list of the apparatus required, tells how to clean this apparatus and how to care for it, and gives directions as to how to obtain specimens and how to prepare reagents. Of especial value are the tabular instructions of how to titrate antigen, perhaps the most puzzling and tedious of the procedures required of a Wasserman technician. An experienced laboratorian will recognize that even omissions are carefully intentional. For instance, the mysteries of the water bath thermostat are not explained. Thus the temptation to meddle with it is partially removed. The standard technic published in bulletin 10 might well be adopted by any laboratory.

—*Jour. A. M. A.*, March 27, 1926.

¹United States Veterans' Bureau Medical Service Clinical Bulletin No. 10, Standardization of Laboratory Work in Hospitals and Regional Offices—The Wassermann Test, compiled by Philip B. Matz, M.D.

[In which the Squibb Professional Service Representative leaves a timely reminder on Hay Fever Prophylaxis]



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pected onset of the usual seasonal occurrence in order to desensitize the patient by the time that the offending pollens make their appearance.”

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THE RHODE ISLAND MEDICAL JOURNAL



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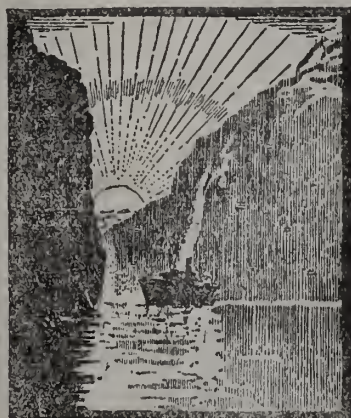
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3.....	4 to 5.....	7
4.....	5 to 6.....	6
5.....	5 to 7.....	5
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ORIGINAL ARTICLES

THE TREATMENT OF CERTAIN SUPPURATIVE CONDITIONS OF THE LUNG*

By WYMAN WHITTEMORE, M.D., F. A. C. S.
BOSTON, MASS.

The subject of thoracic surgery is a very large one. One much larger than the general surgeon, who is not particularly interested in it, is apt to think. The drainage of acute empyema, the operations for the closure of chronic empyemas, are only a very small part of the whole subject. This may be readily seen in looking over Lilienthal's recent book on thoracic surgery, which is published in two large volumes each of which contains between six and seven hundred pages.

It seemed to me, this afternoon, that it might be of interest to speak of the treatment of certain of the suppurative conditions of the lung that surgery is trying to benefit and to bring out some of the things that surgeons interested in thoracic surgery are trying to accomplish in the face of many difficulties. It is only during the last 15 years that there has been any great advance made in the knowledge and treatment of these conditions, so men working in this field should still be considered pioneers. It may be, and it probably will be, that 10 or 15 years from now our ideas will have changed radically from those of the present, just as our beliefs today are very different from those of 10 or 15 years ago.

The two subjects that I propose to discuss, very briefly, are the simple lung abscess that is of a non-tubercular nature, and bronchiectasis. It is necessary for this purpose to have a clear idea of these two conditions and this is not very easy, at least for me, as I frankly say that it has only been within the last two or three years, that what I mean in using these terms has become reasonably

clear to me and I well realize that what I mean in using the term bronchiectasis, for example, may be quite different from what someone else may mean in using it. And, indeed, lung abscess and bronchiectasis may overlap one another and still a third condition may enter into the picture. By lung abscess, I mean, an actual breaking down of a localized area in the parenchyma of the lung and the formation of an abscess surrounded by inflammatory tissue-pneumonitis—this may be a fairly thin wall or a very thick one. X-ray should demonstrate a cavity in this area with a fluid level that shifts with change in position of the patient. It is interesting to see what may happen to this condition if it does not get well by itself and has no treatment. One of the best ways of following this is by X-ray and it is remarkable to see in the course of a month, or two or three, that what was formerly a single abscess has entirely changed. The X-ray shadow is merely a dense one with no central cavity formation, there may be several small bright areas in this shadow that are probably small abscess cavities. As the condition persists, it is only natural that there should be some dilatation of the bronchial tree leading to this part of the lung so that there exists a localized bronchiectasis. If the lobe of the lung should be cross-sectioned it would show some dilation of the bronchioles with or without pus in them and many small abscess cavities, some draining and others not. This condition, then has become a pyemia of that region of the lung. What at first was a more or less simple abscess has now become a localized pyemia with a localized bronchiectasis. As I shall point out later what may have been a comparatively simple condition to operate upon has become a difficult and an extremely dangerous one to deal with. Of course all abscesses do not change their characteristics and become another condition as quickly as I have described, but I find that sooner or later this will take place if the patient lives, is not operated upon, and does not cure himself. It is well to bear in mind that there are many other complications that may develop as time goes on. Brain abscess is not uncommon, the infection being car-

*Read before the Rhode Island Medical Society, March 4, 1926.

ried directly through the blood stream. Extension of the infection in the lung, broncho-pneumonia in the same lung or in the opposite one, septicemia, general pyemia, pericarditis, and perforation into pleural cavity are met with. Hemorrhage may take place at any time this varying in severity from a trivial to a fatal one.

Let us now turn to bronchiectasis. In this condition there is a dilatation of the bronchial tree. As surgery can only hope to deal with a process localized in one lobe of the lung the bi-lateral disease cannot be considered in this paper. The bronchus leading to one lobe of the lung and the bronchioles become dilated. Sooner or later infection will always take place, so that pools of pus form in these sacculations. Occasionally there will be a very large one which may contain as much as half a pint of pus. As the dilatation of the bronchus increases the wall thins out and the infection may extend in to the parenchyma of the lung so that an abscess or abscesses of the lung will form. These are often called bronchiectatic abscesses. I prefer to call these lung abscesses, as they truly are, and limit the term bronchiectatic abscess to the sacculations formed by dilatation of the bronchus containing pus. When, then, the condition is one in which there are dilatations of the bronchus and bronchioles containing pus and also many large or small abscesses in the parenchyma of the lung, there is a suppurative bronchiectasis plus a localized pyemia of the lobe of the lung. When the infection in the lung is very slight the condition may remain stationary for many years. Bronchiectasis may be divided into those cases that start in early childhood without any definite etiology and those that are acquired—the latter being due to foreign bodies, including not only foreign substances such as teeth, beans, etc., but also infected material that lodges in a bronchus. When the dilatation of the bronchus begins in childhood sooner or later infection will take place. As I have said this condition may exist for many years. I well remember one case—a man in the late sixties who had had this condition ever since childhood. He was a thin, frail man who quite naturally had become greatly interested in his condition, so much so that he kept a careful record of the amount of sputum raised each day. He weighed this and found that in the course of a year the sputum raised weighed more than he did. If I remember

correctly he weighed about 95 pounds and the sputum weighed several pounds more than this. If the infection works through into the parenchyma of the lung, complications such as I have already mentioned in speaking of lung abscess may take place and the span of life is not apt to be as long as it was in this remarkable case just mentioned.

Let us now take up the treatment of these two conditions, considering lung abscess first. This may be divided into four possibilities. Medical, or "expectant" treatment, bronchoscopy, artificial pneumothorax, and operation. All cases should be given the opportunity of being cured by medical treatment before any other is considered. This consists of rest in bed, good food, fresh air, sunshine and postural drainage. Usually it will be found that there is some position in which the patient can be placed that will cause the abscess to be drained by gravity. This position varies with the position of the abscess, *e. g.*, if the abscess is situated in the lower lobe, raising the foot of the bed, so that the patient's head is downhill will aid in emptying the abscess. Or the patient may be taught to lean over the side of the bed with his head nearly down to the floor and this will bring about the desired result. Of course this position cannot be kept up for any length of time at first, but gradually the length of time may be increased so that this position may be taken and the patient remain in it for some 15 to 30 minutes three or four times a day. Needless to say co-operation on the patient's part is very necessary for anything to be accomplished with this form of treatment. Just how long medical treatment should be kept up is largely a matter of opinion depending on each individual case. It is well to bear in mind how many cases may be expected to be cured by this method and how many will die if no treatment is undertaken. In a series of 100 cases of my own, 11 per cent recovered spontaneously. Lord, (*Diseases of Bronchi, Lungs, and Pleura*), reports a series of 227 cases taken from the Massachusetts General Hospital and his own practice in which 11 per cent recovered. The total duration from onset to recovery in these cases, was usually within two months. The longest duration was ten months in one case. The fairly mild cases in which septic signs are few or absent, in which the sputum is small in amount, perhaps half an ounce in 24 hours, not foul, and in which the process is sit-

uated close to the root of the lung are the most favorable ones for this form of treatment. While this treatment is being carried out, great care should be taken to check the progress made or to note the stationary course of the disease or its downward progress. If septic signs increase, or the amount of sputum increases, or the foul odor becomes more marked, other methods of treatment must be strongly considered. In continuing medical treatment over a long period of time the dangers of such complications as I have mentioned should be always remembered. Narcotics to control cough must be used very sparingly. If cough is checked and sputum that should be raised, retained, septic signs will increase and the process may extend.

Bronchoscopy in the hands of men especially trained, who are able to do this under local anesthesia, or without any anesthesia in children, may be tried in the very early cases after they have broken into a bronchus. I do not believe this form of treatment should be tried when a general anesthetic must be used. This method consists of the aspiration of the cavity, dilatation of any partial stricture in the bronchus and possibly the lavage of the cavity with some mild solution. Cases in which the abscess cavity is situated close to the root of the lung seem to be the most favorable for this treatment. A few successful cases have been reported. It seems only reasonable to me to expect few cures in those cases in which this treatment has not been instituted for several months after the formation of the abscess.

Artificial pneumothorax, in my opinion, is in about the same status as bronchoscopy. The only hope for this to produce a cure is to bring about a collapse of the lung early, before adhesions have formed. After the lung and the costal pleura become adherent no good, other than possibly a very temporary one, should be expected. In one quite striking case, it did temporary good. A woman entered the hospital in extremely poor condition, far too poor for operation to be considered. She had almost continuous cough, could neither take any nourishment nor obtain any sleep. Injecting a small amount of air into the pleural cavity lessened the cough very much so that some rest and nourishment could be taken, although X-ray taken, following the pneumothorax, showed

the lung to be firmly adherent. In any attempted cure by this method the lung must be kept collapsed for a long time, probably several months to a year. Of course there is an occasional "freak" case in any walk of life. Balboni and Churchill ("Boston Medical and Surgical Journal, January 5, 1924") report a successful case following one injection of air. I well remember this case. A small child had a lung abscess in an upper lobe and was too sick for operation to be considered. The temperature was high and the amount of sputum, large. Within 24 hours after one injection of air the cough had ceased and the temperature was normal. During her stay in the hospital, there was never any more cough or rise in temperature. On leaving, X-ray showed the cavity healed, the lung expanded, and she has remained well ever since. Abscesses situated near the root of the lung are the most favorable for this treatment. There are certain dangers that should always be remembered in using this method of treatment. If too much air is injected into the pleural cavity when the lung is adherent to the costal pleura, an adhesion may be stretched so that a tear in the lung will be brought about. If this tear takes place near the region of the abscess an empyema will be produced. In stretching an adhesion, air may enter a blood vessel and an air embolus lodge in the brain.

Abscess situated near the periphery of the lung in which X-ray demonstrates a fluid level is the most favorable one for operation. Drainage of a lung abscess may be a comparatively easy procedure, or on the other hand, a difficult and trying one. Local anesthesia should be used when possible. This is always possible when the lung and the costal pleura are adherent, unless the patient refuses to allow its use. Seldom can anyone be sure from physical examination whether or not the lung is adherent. If the X-ray shadow extends to the axillary line, for example, and the process has existed for several months, it is justifiable to assume in planning operation, that the lung is adherent to the costal pleura in this region. A window in the chest wall should be opened down to the pleura by the excision of a section of one or two ribs. This should be done in the region that seems, from the physical examination and X-ray, to be the nearest approach to the abscess. (Let me

say here that I do not believe it is ever justifiable to attempt to place an aspirating needle into a lung abscess through the chest wall.) If inspection of the pleura shows it to be thickened, grayish white, with no movement of the lung with respirations beneath it, an opening into the lung may be made immediately, with confidence, that the lung and pleura are adherent. On the other hand, if the pleura seems normally thin, and the lung is seen moving with respirations, it is better to do the operation in two stages, granted the correct approach to the abscess has been chosen. The lung can be made adherent to the costal pleura by placing a gauze sponge against the pleura and leaving it there for four or five days, when the second stage may be safely undertaken. Sutures may be used to sew the lung and pleura together, but this accomplishes no more than the simpler method and in the process of placing the sutures, a pneumothorax may be created. Before suturing the lung to the pleura or packing gauze against it, further search for an adherent area should be made by excising a section of the rib above or below as seems best, and inspecting the pleura again. It is not uncommon to find that the original approach is a rib too low, or a rib too high. If no adherent place can be found, it seems to me, the best procedure is to give the patient some form of positive pressure anesthesia—to open wide the thoracic cavity, explore it, find the abscess area, and bring this to the chest wall and suture it there. A delay of four or five days to a week should follow this procedure before opening the abscess, in order that adhesions may form, so that an empyema will not follow the opening of the abscess.

An abscess may be opened in various ways. Personally, I do not believe in aspirating it, even with the adherent lung before me. I see nothing to be gained by this technique except a little moral support, as frequently the abscess will not be found with the needle, or it may be empty so that aspiration obtains no pus. Surely, then the operator will not abandon any further search for the abscess. The lung must be opened and the abscess found. So why run the risk of a dangerous hemorrhage by putting a needle into the lung. A small incision should be made into the lung and then, with the finger, that part of the lung ex-

plored for the abscess. The finger can readily recognize the difference between normal lung and the thick, tough, pneumonitis which always surrounds the cavity and can easily tell when it breaks through into the abscess. Often, when this takes place, the operator and his audience will be pleased by the sight of actual pus coming from the lung, but if the cavity happens to be empty at this moment there will be no pus seen. However, if the surgeon is greeted with a foul blast of air on withdrawing his finger, or if the finger has the characteristic smell on its end, he may be sure that he has found the abscess. Some surgeons prefer to open into the abscess with the cautery, but in doing this, any blood-vessels encountered will be seared over by the heat so that when sloughing takes place a secondary hemorrhage may follow. An abscess should be drained with a large, soft rubber tube. After two or three days its position should be slightly changed each 24 hours, so that it will not erode through the wall of any vessel that it may be resting against.

An abscess that has existed for a long time should be drained for a long time. It is better to drain for too long a time than for too short a time, as, if the tube is removed too soon, a recurrence will surely take place. No irrigations can be used. At first, cough must be fairly well controlled by narcotics. The same complications that may occur with a septic condition in the lung before operation may follow it, but the one to be most dreaded, is secondary hemorrhage. Fortunately, this does not occur often. If it does occur, it is usually not very early in the convalescence. When this takes place it is a most distressing thing to the patient and surgeon. It is often difficult, and occasionally impossible, to control it, as the bleeding takes place both through the wound and up through the bronchus and mouth, so that the bleeding is in two different directions. When this takes place the tube should be removed and the cavity packed tightly with gauze. Morphine in fairly large doses should be given. Personally, I feel that the packing should not be disturbed for from one to two weeks and when it is removed, it should be replaced by another gauze pack. Some packing should be kept in the cavity until it is entirely obliterated. In the usual case, in which no hemorrhage takes place, the tube should be kept

in until the cavity is also obliterated. In the chronic case, in which drainage has been kept up for a long time with little or no evidence of the cavity closing, I believe Graham's method of partial lobectomy with the actual cautery should be done. Following this, the packing should be kept in until the cavity is entirely closed.

The immediate operative mortality is about 15% and I believe that 60 to 65% of the cases may be expected to be cured or permanently improved. By this latter, is meant that in a few cases it is necessary to continue the drainage by a very small tube, or by means of a permanent fistula indefinitely. It is far better to go through life with a small sinus discharging a few drops of pus each day, than to have a recurrence. These individuals can do anything in life except go in swimming. A very small number of cases, probably less than 5%, leave the hospital having made an excellent convalescence—they do well for several months and then have very slight bleedings, that gradually increase until a fatal hemorrhage takes place, if nothing is done for them. These patients should be returned to the hospital and a partial cautery lobectomy done.

The treatment of localized bronchiectasis may be divided into medical, bronchoscopy, artificial pneumothorax, and surgery. I think medical treatment can be dismissed in a word by saying that no patient will ever be cured by it. If a patient can devote his life to taking care of his health, spending his winters in a warm, dry climate, he may live a long time. If a foreign body, lodged in a bronchus, is the cause of the bronchiectasis its removal by the bronchoscope will often cure the disease, granted that the foreign body has not remained in the bronchus so long that a definite suppurative bronchiectasis and local pyemia have developed. If this has taken place, the removal of the foreign body will have little beneficial result. I cannot conceive how aspiration or irrigation can do more than temporarily benefit the condition. It should not be expected to produce a cure.

It may not be out of place at this point, to mention the use of Lipiodol in these cases. Lipiodol is a solution of iodine and oil that is opaque to X-ray. Foriestier, of Paris, was the originator of this and its use in the various so-called closed cavities of the body. As far as the bronchial tree is concerned, it is used as an aid to making the

diagnosis and also to a certain extent therapeutically. It may be injected into the bronchial tree by various methods. 1. Through a curved metal tube that passes through the pharynx and larynx. 2. By the use of a laryngoscope. 3. By a bronchoscope. 4. It may be injected into the trachea by puncturing it in the neck with a large needle. I feel that, in certain cases in which the diagnosis is doubtful, in spite of physical examination made by a pulmonary expert and routine X-rays taken in various ways and positions, if Lipiodol is injected into the suspected part of the lung through a bronchoscope, and into this region only, X-ray, if taken immediately, before the Lipiodol is coughed out, will be of greater value than any of these other examinations. Dilatations of the bronchus and bronchioles going to one lobe of the lung, for example, when filled with Lipiodol, stand out very distinctly in X-ray. The knowledge gained from its use in an occasional obscure post-operative case may be great. In all cases that have had extensive thoracic operations the physical signs are almost entirely obscured and the ordinary X-ray examination is of practically no value. If, in these cases, Lipiodol is injected into the diseased side, X-ray may show very definitely just what the pathological process is. I can have no great enthusiasm for the use of Lipiodol therapeutically, as it is inconceivable that its use can cure any chronic suppurative disease of the lung. On the other hand it has been stated, by men using it, that there is a temporary benefit obtained by its use. If it is used in a case of localized bronchiectasis, for a short time following its injection, the patient will feel more comfortable and will not cough or raise as much sputum. Naturally, no case has ever been cured by its use.

I do not think that artificial pneumothorax can cure this condition, even if there are no adhesions so that a complete collapse of the lung can be brought about. The general condition may be temporarily improved, but never cured. The same complications may be encountered in keeping up artificial pneumothorax over a long period of time, as already mentioned in using this form of treatment in lung abscess; as for example, empyema, air embolus, and the occurrence of a non-infected fluid in the pleural cavity.

Surgery of bronchiectasis may be divided into operations that tend to permanently collapse the

lung by extra-pleural thoracoplasty, drainage operations, and those that remove the diseased condition of the lung. The only possible cure, as far as I know, is the actual removal of a part of, or the whole lobe. Before taking up this latter operation, I wish to mention the treatment by collapsing the chest wall, as certain surgeons believe this to be the ideal procedure. In this technique, sections of ribs are removed, from the 1st to 11th, in much the same way as in pulmonary tuberculosis. The operation should be done in two, three, or more stages. I am quite ready to acknowledge that the general condition of the patient is often materially improved by this, but I do not believe any actual cure can be produced. It is often worth trying in certain cases, as it is a very safe operation, the mortality being about nil and certain benefits can be pretty well assured. If one will picture the pathology of this condition, it can readily be understood that no drainage operation will ever cure it. Here again, the actual opening of a large abscess situated either in the bronchus or in the parenchyma of the lung will, of course, improve the general condition, but as there are manifold other abscesses not draining into this large one, it is unreasonable to expect a cure. It is quite justifiable to do this operation, but not with the expectation of producing a cure. Sometimes a combination of both a collapsing operation and a drainage one will be of some benefit. If this is done, the collapsing should be done first. No cure will be brought about, however.

As I have said before, the only cure is the actual removal of the diseased part of the lung. There are two methods. First, the removal by means of the cautery, Graham's method, and second, the surgical amputation of the lobe or a part of the lobe of the lung. I have already alluded to Graham's cautery lobectomy, in speaking of the treatment of certain chronic lung abscesses. In these cases, I think the method ideal. In this method, a window in the chest wall is opened down to the pleura by the removal of sections of several ribs overlaying the diseased portion of the lung. If the lung and pleura are adherent, the operation may be continued; if not, steps must be taken to bring about adhesions and the cauterization postponed a few days. With an ordinary plumber's cautery,

an area of the lung is opened and burned. Gauze packing then is applied tightly. This is removed and the lung wound repacked in a few days. In two or three weeks, further cauterization of the lung should be done and this process should be repeated until all the diseased area is destroyed. Graham does not have any fear of either hemorrhage at the time of operation or after it. This, he largely accounts for by the fact that the pulmonary blood pressure is only $1/6$ of the general blood pressure. But it should be remembered that the pressure in the bronchial arteries is the same as that of the general circulation. I have been much interested in this method and have tried it a number of times. To be honest, I am not enthusiastic over it, but, needless to say, this technique in my hands is probably not the same as in Graham's hands. Hemorrhage, both at the time of operation, and secondarily, has greatly upset me. I have had a patient have a secondary hemorrhage at the end of two weeks and be dead in five minutes. I have had another patient have a hemorrhage on the operating table, the blood coming from the bronchus and out of the patient's mouth but none from the wound. Fortunately, this was controlled. The technique of cauterizing the lung is a very blind one to me. It seems rather impossible to know just how much or how little has been done. I well remember an Italian woman, whose right upper lobe I tried to remove by this technique. I cauterized this four times and at the last operation, thought I had probably burned it all out. She died a week or two later. Autopsy showed this lobe to be an almost solid mass as large as a grape-fruit, with many walled-off abscesses, and the amount of lung that I had removed, in four sittings, was about the size of a hen's egg. This showed me how futile my efforts had been. It is only fair to add that Graham has had excellent results, having cured a number of patients and his mortality is very low.

The last operative technique that I shall mention, and that only briefly, is the amputation of a lobe, or part of a lobe, of the lung. There are various methods of accomplishing this. Undoubtedly, the safest is that done in two stages. At the first, the thorax is widely opened, explored, and the diseased lobe freed from adhesions, if there are any, and there usually are. This is then sur-

rounded by rubber dam. Some method should be used to make the good lobe become adherent, such as rubbing it lightly with gauze, or placing a thin layer of gauze between it and the parietal pleura. (If gauze is used, it should be removed in forty-eight hours.) The chest wall is then closed. In about a week or ten days the wound is re-opened and the diseased lobe removed. The pedicle should be carefully tied off in sections. If a part only, of a lobe is to be removed, this is done in much the same way. The diseased area is clamped off, removed, and the stump carefully sutured. Unfortunately, the mortality resulting from the removal of a lobe, is almost prohibitively high. In Lilienthal's hands, who has performed this operation more times than any other surgeon in this country, the mortality is 47%. I have done this six times. One case, only, recovered and it may interest you to know what happened to the others. One did beautifully for 16 days, and then died in a few minutes from hemorrhage. One died in 5 days, the cause of death I do not know, except that he refused all nourishment during the entire time that he lived. Of course, rectal feeding was used. Another died 10 or 12 hours following operation. In this case, at the end of the operation, she was transfused, not on account of loss of blood, but merely on general principles. Her temperature steadily rose to 105. I cannot help but think that the transfusion may have had something to do with this death. One case died 5 or 6 weeks after operation, brain abscess being the cause. The first case I ever did, died soon after operation from shock. This was a very difficult operation on account of adhesions. At the present time I should know enough not to attempt the operation under similar conditions. This is a sad story, but one well worth knowing. Recently, I have used a very different technique. In this operation, after freeing the lobe of the lung, sections of the ribs overlying it are removed, so that the chest wall can collapse a certain amount, and then as much as possible of the lobe is brought out onto the chest wall and sutured there. In about 10 days this area will either slough off or it can be removed without any anesthetic. I have only done two cases by this method, but both made very nice convalescences and, naturally, I feel quite encouraged by this. However, I realize two

cases is too little to base any opinion on. The pleural cavity, I believe, will always become infected after either of these operations and provision should be made for this at the time.

Operations of this magnitude cannot be urged, but occasionally one meets with a patient whose life is so miserable and who finds that he cannot live at home, or with anyone, on account of the fearful odor associated with him: And it is this class of patient who, in spite of knowing the danger run, will be glad to take this chance. As the years go by, I firmly believe that a technique will be found that will reduce the operative mortality to a reasonable one. When this takes place, medical men in whose hands these patients are, will quite naturally be more inclined to urge, or at least allow their patients to be operated upon.

I have tried to show you some of the manifold difficulties that Thoracic Surgeons are trying to deal with in just this one branch of chest surgery. If I have aroused your interest, I shall feel well satisfied.

DISCUSSION

Dr. George A. Matteson asked Dr. Whittemore why brain abscesses are so prevalent after (operations for) lung abscesses.

Dr. Whittemore's paper was also discussed in part by Dr. Jacob Kelley.

Dr. Isaac Gerber took the floor and spoke to the effect that within the past ten days the agents in this country who have been supplying Lipiodol have stopped because several deaths have been reported, and for some time to come they will not furnish any for X-ray for bronchiectasis, or any more for treatment.

Dr. Gerber further stated that he did not know whether it was a temporary condition or not. He stated that there is no doubt that it (Lipiodol) does very admirably to delineate bronchial cavities and in many instances brings out cavities, particularly those back of the heart in ordinary visibility of X-ray films.

Dr. Whittemore replied to Dr. Matteson and also to Dr. Gerber as follows:

"The only explanation I have had given to me was that of direct connection of the blood stream from the lungs. I do not know just what the percentage of cases was,—you see them very rarely; I have once in awhile.

"The subject of Lipiodol is a new one. I was present when Dr. Forestier spoke at the Massachusetts General Hospital, and have been present when Lipiodol was injected. My impression is quite different. It is a very distressing thing,—30 or 40 cc., and the patient tries to cough it off. Two or three patients had to be held down to take the X-ray. They cough their heads off. How long it stays in the lungs seems to be matter of opinion,—some say it is expelled right away; some say five or six weeks; some say two or three months.

"Dr. Lord in Boston feels very strong about this question of Lipiodol. He feels that he makes just as good a diagnosis without it as with it. In a recent publication the author mentions several cases where it has been injected into the spinal column (in three cases) and says that in one case which came to an operation on the spinal column and it was found that Lipiodol was present and had set up an inflammatory reaction in the cord, which was very unfortunate."

THE CARE OF DIABETICS AT THE RHODE ISLAND HOSPITAL SINCE 1910*

By

A. M. BURGESS, LOUIS I. KRAMER, MIRIAM J. CARPENTER AND HELEN S. MUNRO

Two great advances in the treatment of diabetes have recently been made. These are (1) systematic instruction of all patients and (2) the use of insulin. Now that the value of these methods is well established, it becomes of interest to attempt to estimate just what has been accomplished. It is the purpose of this communication to present a concise summary of the treatment of the disease during the past sixteen years at the Rhode Island Hospital, a survey which is presumably typical of the changes in hospital treatment of diabetes throughout the country. The growing importance of the subject, we feel, is ample justification for such a report.

That diabetes is, indeed, a more important problem for the hospital as well as for the private

practitioner, must be admitted. Now that the means to cope successfully with the disease are available, it becomes the duty of every physician to familiarize himself with these methods, whereas, formerly the bad general results of treatment made a careful study of the details of the work scarcely worth while for the average medical man. Furthermore, it is pretty generally believed that the incidence of the condition has actually been increasing in recent years. Mortality statistics appear to support this view—Table I. But the real reason for the increased interest in the disease is the fact that the span of life of the average diabetic has been so lengthened that with new cases appearing at the same rate as formerly, the number of living diabetics in the community has become increased many times over. Diabetics, even the severest, do not die but live, and live on indefinitely if no complicating illness intervenes, providing they can be persuaded to master and adhere to the principles of treatment.

Table I

DEATH RATE FROM DIABETES 1880-1925 IN PROVIDENCE, NEW YORK AND PHILADELPHIA

	1880-4	1885-9	1890-4	1895-9	1900-4
Providence	6.	7.	11.	10.	17.
New York	4.	6.	8.	10.	12.
Philadelphia	3.	5.	6.5	8.	9.

Continued

	1905-9	1910-4	1915-9	1920-4	1925
Providence	15.	19.	19.	23.	13.5
New York	15.	17.	20.	21.	
Philadelphia	11	15.5	15.	17.	

The contrast, then, between conditions in this field in 1910 and 1925 is most striking. These sixteen years naturally divide themselves into three periods. The first, 1910-1915, was a continuation of the years which preceded it, and treatment for the most part was along the lines laid down by the earlier great investigators, Von Noorden, Naunyn, and others. The second period, 1916-1922, may be called the period of undernutrition and the beginning of organized instruction of patients. 1923-1925 is the period of insulin. Even at the present time we must consider our work as crude when compared with the methods which will be in use when the next ten years have passed.

*Read at the meeting of the Rhode Island Medical Society on March 4, 1926.

An illustration of one phase of the contrasting conditions in 1910 and 1925 is shown in Table 11. Here are recorded the total number admitted to the hospital each year for the whole period under discussion. This is rather striking, as in 1925 the number is twenty-six times as great as in 1910. This table also shows the average length of stay in the hospital of the patients with uncomplicated diabetes—and this, it can be seen, has been reduced markedly in the last few years. At the present time we regard the hospital stay of a diabetic as a mere incident in the course of his treatment, but at the same time as an opportunity to study the severity of his diabetes and to give him a short, intensive course of instruction in the nature and treatment of his malady.

Table 11

DEATHS FROM DIABETES IN R. I. H., 1910-1925,
INCLUSIVE

Year	No. of Cases	No. Deaths
1910	5	0
1911	6	2
1912	9	4
1913	13	4
1914	5	0
1915	16	3
1916	33	2
1917	29	3
1918	16	4
1919	13	2
1920	24	9
1921	28	5
1922	30	6
1923	82	9
1924	104	6
1925	130	15
Total	543	74

What happened to the diabetic who came to the hospital in the years 1910-1915? First, let us consider the mild diabetic. He was put on a low carbohydrate diet with a high protein and fat content and high caloric value. He became sugar free very readily, and though he often suffered from a mild acidosis, he usually gained tolerance and was relieved of his symptoms. He learned very little about his disease and, as he was not taught the simple test for sugar in the urine, could never tell how he was getting on except by visiting his doctor. Sooner or later, the irksome restrictions proved too much for his fortitude and, as he felt perfectly well, he abandoned them, with an inevit-

able return of, first, his glycosuria, and then, after an interval of comparative well being, a return of his symptoms. When the symptoms became sufficiently severe he came back to the Out Patient Department only to be started again as before, on another cycle of treatment. Of course, many such cases eventually became severe or were rendered so by complicating illnesses.

The fate of the moderately severe and the severe cases cannot be accurately determined from the records during this period. We know, however, that most of them received routine treatment similar to that mentioned above, in the Out Patient Department. The sudden deprivation of carbohydrates with the maintenance of a high caloric diet of proteins and fats undoubtedly caused much severe acidosis and hastened the death of many. When such patients were taken into the house, as rarely occurred, the records show that they were at times given "oatmeal days" to decrease acidosis and "green days" to reduce glycosuria, but usually without much success. No real instruction of patients, either in the house or Out Patient Department was attempted during this period.

By 1915, the epoch-making work of Allen was being generally followed. During the next seven years Allen's principle of improvement in tolerance by undernutrition was applied to the mild and most of the moderately severe diabetics with greatly improved results. At the hospital, patients were fasted until sugar free and then tolerance was tested by gradual increase in carbohydrates, proteins and fats, keeping the total calories very low. The mild diabetics did better than ever, and many of the moderately severe cases made marked gains in tolerance and were restored to some degree of efficiency. In the Out Patient Department, the special diabetic clinic was established and the systematic instruction of patients, that great principle of treatment which we owe especially to the work of Elliott P. Joslin, was begun. During this period the really severe diabetics were indeed pathetic figures. No longer allowed to rush merrily on to an early death in coma, these unfortunates were starved to mere skeletons in the vain hope that they might thus acquire enough tolerance to allow of a food intake which would maintain some degree of physical efficiency.

The Out Patient Clinic was at first very small, but good results were obtained in some of the mild, and a few of the moderately severe cases. At the present time there are three patients in the clinic who were in attendance in 1918 and five who were on the list in 1920. Patients were taught the Benedict's test for sugar in the urine and some of the simple facts of diabetic dietetics. Visits to the patients in their homes were made by Miss Lydia Chace, the Social Service worker in charge of the clinic. During the last half of the year 1918 the clinic lapsed as a result of the war and the epidemic of influenza. In 1919, it was re-established and gradually built up so that in 1923, when insulin became available, it was much larger than at any previous time.

Table I mentioned demonstrates the phenomenal growth of diabetic work in the wards of the hospital. In the Out Patient Department, the growth has been less striking because at the time of the introduction of insulin, the clinic was flourishing and counted approximately 60 active cases on it's lists.

The figures for January 1, 1926, relating to the Out Patient Clinic are of interest. These are to be shown in Table III. This gives a total number of active cases in the clinic of 177. (A case is considered active if the patient appears at the clinic at least once in six months). These cases have been classified as to their severity as follows:

Severe	18
Moderately severe	38
Mild	121

Of the 177 patients, 84, or about 50%, have at some time or other been on insulin and 18 (those rated as severe) are on "permanent" insulin treatment. 46 of the mild cases have had insulin temporarily, either to aid in rendering them sugar free or to re-enforce their tolerance during the presence of some complication or other.

Table III

OUT PATIENT CLINIC
(January 1, 1925)

Total active cases	177
Severe	18
Moderate	38
Mild	121
	<hr/>
	177

Severe cases (all on "permanent" insulin)...	18
Those who have been in coma.....	4
Those who have been in coma twice.....	2

Efficiency Classification

Working (including two doing housework)	13 (or 72.2%)
Rated 90 to 100% physically efficient	7 (or 38.8%)
Rated 70 to 90%.....	6 (or 33.3%)
Rated below 70%.....	5 (or 27.8%)
Sick in bed because of complications.....	2
With latent tuberculosis.....	2

The efficacy of modern treatment is illustrated by a study of the group of patients rated as severe and kept on "permanent" insulin. These are also shown in Table III. Of this group of 18 patients, 13, or 72.3% are working, including two who are doing housework. Seven are rated as 90 to 100% physically efficient, six, as 70 to 90% efficient, and only 5 as below 70%. Of these five, two are in bed suffering from complications. Two of the series have been diagnosed as harboring latent pulmonary tuberculosis and these are both rated as 90 to 100% efficient.

The satisfactory nature of these results is made more appreciable by the realization that every one of these patients would be dead were it not for insulin. Four of the group have been through diabetic coma, and two of these have survived a second attack. One man is of particular interest. He has been a very hard person to persuade to "play the game," though he is very intelligent. Less than a year ago, while in Florida, he was successfully rescued from coma by the use of insulin. About four months ago he went into coma while living at his home in Providence. Here, he was treated by his brother, a layman, who, without troubling to call a physician, plied insulin and orange juice with the result that the patient, after forty-eight hours of unconsciousness, recovered, returned to the clinic and told us the story which we have carefully verified.

An attempt to review the treatment of coma in the hospital fails to reveal a single case of recovery up to the time when insulin was used. The

figures for the past three years are as follows:

1923—4 cases—1 lived.

1924—6 cases—2 lived.

2 recovered but died of complicating illnesses.

2 died.

1925—4 cases—1 lived.

This gives a total for the three years of 14 cases of whom 4 survived. A study of the fatal cases shows that death has resulted either because the patient was admitted after coma had persisted so long that respiratory and circulatory failure were imminent, or because of the presence of a complication, such as pneumonia, myocarditis, or the like. A large number of patients in the precoma-tose stage of severe acidosis, received routine treatment and of these, but one that was uncomplicated lapsed into coma, and none failed to recover.

Before the use of insulin, coma was treated by forcing fluids, enemas, heaters and blankets, stimulation, etc., and, in many instances, by the intravenous infusion of soda bicarbonate or glucose solutions. Since early in the year 1923, sodium bicarbonate has been abandoned and insulin has been used in doses which have increased with each succeeding year. With the insulin, glucose has been administered by mouth, when possible, otherwise, by rectum or intravenously. An initial dose of 100 units of insulin, part subcutaneously and part intravenously, is not excessive, but in the cases treated in 1925, a smaller amount than this was given in every instance.

With the more effective use of insulin, surgery has become more and more available for the diabetic, so that by 1925 it had become our rule to advise the surgeons to carry out any operative procedures that they found to be indicated, irrespective of the diabetes. In other words, we have reached the conclusion that diabetes does not add materially to the risk of operation whatever the anesthetic or the type of operation contemplated, so long as careful treatment with insulin is possible. The danger of ether to the diabetic is acidosis, and in insulin, used with carbohydrates, we have an absolute preventive of such acidosis.

The past 16 years has seen greater and more radical changes in the treatment of diabetes than

will probably take place in the next century. This brief report deals with advances such as we may never witness again in this field. Yet now that the gains are made we have much to do in consolidating our positions. In our own work at the Rhode Island Hospital we see much that can be improved. Better instruction of the patients during their stay in the hospital, a separate diet kitchen for diabetic work under the direction of an expert, better charting, a more accurate check-up on returned trays, a continuous follow-through of instruction from house to Out Patient Department and the home kitchen, and better teaching in diabetic work for the pupil nurse are all among improvements that are vitally needed. Plans for the accomplishment of every one of these things are now being matured.

THE STATE SANATORIUM

The death rate from tuberculosis in Rhode Island has fallen in the last few years from 164 to about 90 per 100,000 living, and the number of active cases has probably correspondingly diminished.

This lessening in the number of cases requires from the medical profession increased skill in diagnosis if as many favorable cases who need treatment are to be searched out and found.

If we of the medical profession are able to increase our efficiency in finding these patients, with fewer cases in the community to spread infection and with an increasing percentage of cases isolated, the mortality rate should fall even more rapidly.

We still receive a considerable number of patients each year in whom tuberculosis has been overlooked by physicians. The giving of cough medicines to patients with chronic cough without chest or sputum examinations, so common a failing 20 years ago, still accounts for a considerable number of mistakes in diagnosis.

Every patient with chronic cough and expectoration is entitled to sputum examinations.

Every patient with chronic cough and negative sputum is entitled to X-ray examination, and his lungs should never be pronounced free from tuberculosis without a negative X-ray.

Continued on page 96

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THE TALISMAN

I await on the threshold of life to welcome every living thing

I preside over the destiny of every success and I am the inspiration of every achievement

I am the poor man's wealth and the rich without me is in poverty

I am sought by all but appreciated by few, I am beyond price but I am everyone's heritage

I am a necessity to hope and misery stalks in the path of my departure

Age like the mantle of night may steal upon us, but if I am present there is cheer and happiness

Desolated and destroyed empires, suicide and infamous crimes have been ascribed to my absence

I am sometimes repulsed but never subdued

I am always welcome, but have often been ignored, offended, imposed upon and insulted

I am in your power and subject to your direction—protect me therefore, guard me and be ever considerate of me for my worth transcends all else

I am HEALTH

F. N. B.

EDITORIALS

THE RADIO NOSTRUM

It would be surprising indeed if, among the many benefits conferred by the new found interests of "radio" there were not some disadvantages and possibilities of mischief. One of these, the broadcasting of the supposed merits of a nostrum concerns the medical profession directly. The advertising power of the radio is enormous. A clear cut, decisive and convincing voice tells a plain and easily understood tale with perhaps a charming personal touch,—for the remedy has helped him too,—and the listeners make a note of the remarkable compound and seek its aid.

But underneath all this is the underlying truth that the great mass of mankind is unthinking, carefree and easily imposed upon. The same public that says "It says so on the bottle" and with the same trusting confidence "I heard it on the radio" places in its estimation the radio broadcaster with the artist and the literateur instead of in the grammar school where he may perchance more properly belong, will accept the message from the air, and the popular intelligence is thereby lowered. Occasional scientific talks under the direction of reputable medical societies are not enough to counteract this evil, it must be remedied by the censors of the whole system of broadcasting which will hopefully be organized under governmental regulation. So powerful an agent for good must be cherished and regulated. Publicity should not be vouchsafed anyone with the price "who engages the facilities of these stations" and the state and national societies should be up and ready to properly guide those measures which will safeguard the best interests of scientific medicine.

A VACATION WARNING

The near approach of warm weather renders timely a warning as to the best use to be made of the annual vacation period. The community as a whole has accepted the idea that a vacation is desirable from the point of view of health and efficiency. The best results from this generally beneficent institution are not always obtained, owing to the lack of judgment of the individual vaca-

tionist. By many, a trip to the seashore or mountains is looked upon as an opportunity to indulge in the maximum amount of violent exercise, regardless of physical fitness.

Those fortunate ones who have most of the summer for play or who have kept in training during the winter months may with impunity undertake exertions which would be suicidal for the average man who must crowd all his recreation into two weeks. Fifty weeks at the desk do not fit one for a sudden transition to extreme exertion. It is best to resist the natural desire to crowd the maximum activity into the all too short vacation.

Also, the man over forty who tries to impress the youngsters with the fact that he is as good as ever, not only fails in that attempt but proves to those who know, and frequently to himself by sad experience, that his years have not brought wisdom. A dilated heart is a poor souvenir to bring back from a mountain top.

THE HOSPITAL BEAUTIFUL

A traveler returning from a strange land recalls the scenes which he has visited principally by mental pictures of natural grandeur, mountains, lakes and rivers; but also by his memories of the man-made beauties portrayed in the architecture of the great public edifices of the communities where he has sojourned. Cathedrals, libraries, Houses of Parliament and the like remain in his mind as symbols of the character and achievements of the people—and as such they descend to posterity, permanent records of the times in which they were created. So, too, the hospitals stand as great public monuments to the spirit and character of their times and have a share in making a deep impression, be it favorable or otherwise, upon the mind of the casual visitor. But far more than this, these hospital buildings, scarcely less holy as they are than the cathedrals themselves, leave indelibly impressed upon the minds of the people of the communities which they serve the picture of their exteriors—those buildings in which loved ones have suffered, recovered or passed out of this life. To fulfill such a purpose the hospital should in its external aspect be endowed with a true intrinsic beauty and dignity appropriate to its place of honor in the hearts of the people.

The graceful towers of the Rhode Island Hospital, rising above the green of the elms beyond the curving sweep of lawn, form a picture of which our citizens are justly proud and which we believe could hardly be excelled. Most of the newer hospital buildings in the state, on the contrary, with their graceless severity of outline exemplifying the thoroughly utilitarian and factory-like simplicity that is the mode, can hardly be commended as appropriate or inspiring. This being the fact it is most satisfying to see in the newly erected Lying In Hospital of Providence a departure from such soulless simplicity and evidence of architectural genius of the first order which has produced a building both dignified and imposing, of which the people of the city and the state can be justly proud.

THE STATE SANATORIUM

Continued from page 93

Of the first 2581 cases admitted to this institution after its opening, in 27% there had been a previous case of tuberculosis in the family. Of the last 1000 cases admitted, in 247 or 24.7% there had been a previous case of tuberculosis in the family. Of 150 cases, 97 or 64% occurred within eight years following the death of or contact with the tuberculous relative.

If physicians would urge chest examinations annually on all family contacts for eight years after a case of tuberculosis has been discovered, many more patients would be detected in the curable stage.

The Sanatorium physicians are holding diagnostic clinics in Apponaug, Bristol, Burrillville, Cranston, East Providence, Esmond, Newport, Warren, Westerly, and Woonsocket. Many of the patients attending these clinics will not employ any physician, many are contacts only, while a considerable number are sent to us for diagnosis by physicians to whom we report our findings.

Clinics perform a valuable service to patients who cannot pay and to drifters who will not stick to any physician or hospital and who should be followed up by nurses and reminded of the risk of infecting others. If physicians would make more use of clinics they would receive more aid in the diagnosis of doubtful cases. This is true of all

tuberculosis clinics in the state by whomever conducted.

In 1922 the Physicians Association of Westerly invited me to hold a clinic there. All the physicians co-operated cordially, sending their cases of tuberculosis and suspect cases to the clinic for diagnosis or advice. The Nursing Association has employed nurses especially interested and experienced in tuberculosis who have given much attention to the work. Previous to this time the Sanatorium admissions averaged only two or three per annum from this town. As a result of the increased zeal and effort on the part of physicians and nurses of Westerly, we have admitted 48 tuberculous patients in three years and seven months or about five times the number previously admitted in the same period. This does not include eight tuberculosis suspects admitted for observation and treatment. Twenty-four of the 48 patients were diagnosed before tubercle bacilli were found, and were therefore in a more hopeful stage. The experience in Westerly shows what we physicians can do when we all make a little extra effort and all help each other.

As a diagnosis of tuberculosis at an early stage is often puzzling to one who sees 500 new cases a year it must be much more so to the average practitioner who sees only five cases or even less. Since the Sanatorium offered to help physicians in the diagnosis of tuberculosis three years ago, over 160 cases have been sent to Wallum Lake for examination and X-ray and as many more have been sent here through our clinics.

Many patients will come to Wallum Lake readily for examination and X-ray who at first will not consider coming here for treatment, but after seeing the place they finally agree to come to take the "cure." The Sanatorium management invites suggestions as to how we can render better service to the physicians and people of Rhode Island and we ask your active co-operation to the end that the mortality from tuberculosis may be still further reduced.

H. L. BARNES, M.D.
Superintendent

P. S. Official figures are not yet available but the tuberculosis mortality per 100,000 for 1925 will be about 80.

SOCIETIES

RHODE ISLAND MEDICO-LEGAL SOCIETY

The regular quarterly meeting of the society was held in the Medical Library, 106 Francis Street, Providence, on Thursday, April 29, 1926, at 5 P. M. The subject for discussion was "Psychoanalysis and Its Effect Upon Modern Literature," by George W. Potter, editor of *The Evening Tribune*, Providence. Guests were invited as usual.

Following adjournment, a light supper was served.

JACOB S. KELLEY, M.D.
Secretary

BOOK REVIEWS

AN INTERMEDIATE TEXTBOOK OF PHYSIOLOGICAL CHEMISTRY, WITH EXPERIMENTS. Third Edition. By C. J. V. Pettibone, Ph.D., Associate Professor of Physiological Chemistry, Medical School, University of Minnesota, Minneapolis. C. V. Mosby Company, St. Louis, Mo., 1925. 404 pp.

The author shows excellent judgment in selecting and condensing the essential facts of physiological chemistry. The chapter on physical chemistry contains a surprising amount of information in its 15 pages. The succeeding chapters deal briefly but effectively with the chemistry of the body, food, digestion, urine, and metabolism.

The theoretical and descriptive part is followed by a section on experimental and analytical methods, comprising the last third of the book. Qualitative and quantitative methods are described with as much thoroughness as space permits. It is disappointing to see that the author employs the term "percent by volume" as equivalent to "grams per 100 cc." The former is ambiguous, and should be discarded, though it seems to be in common use among biologists. The chapter dealing with blood analysis contains the Folin-Wu system, which has been found very satisfactory.

The book is presented as an intermediate textbook, and is to be recommended as such. Its value lies not in new material, but in brevity and clearness. "Lengthy discussions of debated points" are purposely avoided.

PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON HEALTH PROBLEMS IN TROPICAL AMERICA. United Fruit Company, Boston, Massachusetts, publishers.

Although the title and some of the subject matter of this book is purely tropical, the greater part of the 1010 pages may be read with profit and pleasure by any general practitioner in the temperate zone. Had this book an index, it could have been published and sold very readily as a text-book on tropical medicine.

The papers and discussions have been arranged very well on the whole. The list of contributors to the papers and to the discussions contains the names of some of the foremost men in the field of public health and tropical medicine.

The mosquito borne diseases—malaria and yellow fever—are well treated and suggestions for their control, well worth reading.

The value of bismuth subnitrate in large doses for the treatment of amoebic disease was stressed. Its value in conjunction with the simultaneous administration of emetine was emphasized.

Castellani brought out the value of the use of ipecac in the treatment of the bacillary dysentery of children.

The use of vaccines and sera is dealt with in some five papers. Park reports excellent results using 6-10 cc. of convalescent measles serum as a prophylactic. He also brought out the fact that serum drawn from a patient later than three months has lost much of its value as an antibody factor.

Like most of the United Fruit Company's work, this book—the printing and illustrating—has been very well done; but although there is a wealth of material here, it is hard to get at, as there is no index.

SOME FUNDAMENTAL CONSIDERATIONS IN THE TREATMENT OF EMPYEMA THORACIS. By Evarts A. Graham, A.B., M.D., Member of Empyema Commission, U. S. Army; Professor of Surgery, Washington University School of Medicine; Surgeon-in-Chief, Barnes Hospital, and St. Louis Children's Hospital. Cloth. Thirteen illustrations, pp. 110. St. Louis; The C. V. Mosby Company, Publishers, 1925.

This essay was awarded the Samuel D. Gross prize of the Philadelphia Academy of Surgeons

in 1920. The article was not intended as an exhaustive study on the subject, but was written to bring attention to certain principles in regard to empyema rather than to the details of treatment. The author states that by following these principles worked out by the Empyema Commission of the U. S. Army, that the mortality of respiratory hemolytic streptococcus infections complicated by empyema in the camps was cut from an average of over 30% and in some cases up to 70% to 4.3%.

The first principle is "Careful avoidance of open pneumothorax in acute stages." Fifty-two of the ninety pages of reading matter are in this section which deals with the pathology of the infection, opened and closed pneumothorax, intrapleural pressures, equality of relative densities of both lungs in unilateral pneumothorax, bilateral pneumothorax, erroneous conceptions of pneumothorax, experimental methods on human bodies and dogs, relations of amount of air entering pleural cavity to that entering lungs, experimental empyema and pneumonia, application of the experimental results to the treatment of empyema and clinical confirmation of these results with reference to repeated aspirations compared with early continuous drainage and deferred operation. This section is of interest especially to technical laboratory men, with its descriptions of the experiments, its numerous formulas involving "Volumes of Air," "Vital Capacity," "Areas," "Tidal Air," "Negative Pressure," etc., and with its many illustrated smoked drum tracings recorded during the animal experiments. On the other hand, the average busy practitioner would not spend the time to study out the details of this laboratory work, and if he did, he then would not expect to remember anything but the essentials or the conclusions. The citing of many erroneous conceptions of pneumothorax tends to confuse the reader.

A little more space given to the clinical side, especially in regard to repeated aspirations and deferred operation, would make this section more valuable to the average physician. Dr. Graham states that "In all probability a difference of a few days on one side or the other is not of very great importance in deciding when to operate." This point is not conceded by the reviewer of this

article, from his own observations of numerous acute and chronic cases in different army camps. The author states that 13% of the cases treated by aspiration alone were cured. More recent statistics have shown, however, that many of these "cured" cases have since had recurrences and operations, and Dr. Graham does not mention that many of the 13% were discharged with greater morbidity because of their general condition and deformities than those treated first by aspiration and then by operation.

The second principle is "The Prevention of Chronic Empyema by Rapid Sterilization and Obliteration of the Infected Cavity." There are only thirteen pages on this subject. Mention is made of the importance of both the drainage and the necessity of sterilization of the cavity at the same time, the failures being due to non-oblation caused by the fibrosis of the lung resulting from the infection and the thick coat of inelastic exudate covering the lung.

There are a few words on the value of the sterilizing and solvent qualities of Dakin's Solution, which is the only solution to accomplish the desired results early as possible. Five of the thirteen pages are on the exceptional cases of decortication en masse with Dakin's Treatment, while only one paragraph refers to that important factor—the physical means of inflation of the lung and exercise. It also then gives a short discussion of common operations for the cure of chronic empyema and the disadvantages of collapsing operations.

The third principle is "Careful attention to the nutrition of the patient." A little over two pages is used to call attention to the fact that most of the empyema patients had a negative nitrogen balance, unless their diet was pushed up to 3300-3500 calories a day, and that many fatalities and chronic cases resulted from the patients' fighting gradual starvation and empyema at the same time.

The last chapter of the book briefly discusses the following: Fistulas which communicate with the lung; When is empyema healed; Adequate Drainage desirable in subacute and chronic stages; No discord between experimental results on pneumothorax and clinical findings in war wounds of the thorax. This is followed by a summary and conclusion. The addendum has a

twelve-page discussion by the author on open pneumothorax, supporting his claim on the subject, as against those of some of his colleagues with other conclusions. This reader agrees with the author's opinion on this subject. The volume finishes with a bibliography of 56 numbers.

PURPOSE OF INTERNSHIP

E. E. Irons, Chicago (*Journal A. M. A.*, April 3, 1926), points out that the purpose of a hospital internship is not to supply deficiencies of the medical curriculum nor to complete a medical education. Nor is the function of an internship to make specialists. The fear that a year of internship in internal medicine or surgery may contribute to premature specialization seems unwarranted by facts. The purpose of an internship is not primarily to afford opportunity for the formal investigation of a problem, although the atmosphere of research and of desire for knowledge and truth in the hospital will influence the intern daily in making and recording his observations, and may lead him to undertake further independent study during his later residence. The purpose of an internship is not to make possible the operation of the hospital nor to assist the hospital in meeting the technical requirements of some standardizing agency, although the maintenance of satisfactory intern service by the hospital does aid it materially in attaining both these ends. The intern is an important part of the great cooperative enterprise of the modern hospital. He will work faithfully and grow in professional stature, if he is not overloaded, and if he is early led to enter into that spirit of friendly cooperation between attending staff, nurses, administration and patients which characterizes the well ordered progressive hospital, a spirit that may be described as a hospital consciousness. A number of questions arise in the selection and organization of hospitals in which the student is to carry out the purpose of the internship, among which are methods of supervision of this internship and the kind of internship that is likely to be most satisfactory. Some medical schools have undertaken to supervise one year of the internship by requiring a fifth or hospital year as a prerequisite to the medical degree, and delegating the supervision of this year to a group of

faculty members usually called the fifth year committee. This arrangement assures that all students will take internships in hospitals complying with certain minimum standards, and thus protects some of the less critical students from errors in selection of their hospitals. Fifth year committees have incidentally been of great assistance to hospitals, in pointing out, and in helping them to remedy, their defects. The administration of a fifth hospital year is, however, only one of the ways in which the student may be launched on his career on leaving the medical school, and there are those who prefer to have the supervision of the medical school cease at the end of the four years of study. There has been much discussion as to whether a rotational internship should be insisted on for all students, and some states have gone so far as to prescribe the character of the internship and the time to be devoted to medicine, surgery and obstetrics. According to Irons, the suitability of a hospital for the purpose of an internship depends on the ideals and character of its staff, on the ability and desire of its administration to provide the best care possible for the sick, and on the presence of a spirit of inquiry and progress, and not primarily on whether it has a rotational or a nonrotational system.

DIPHTHERIA IN 1925

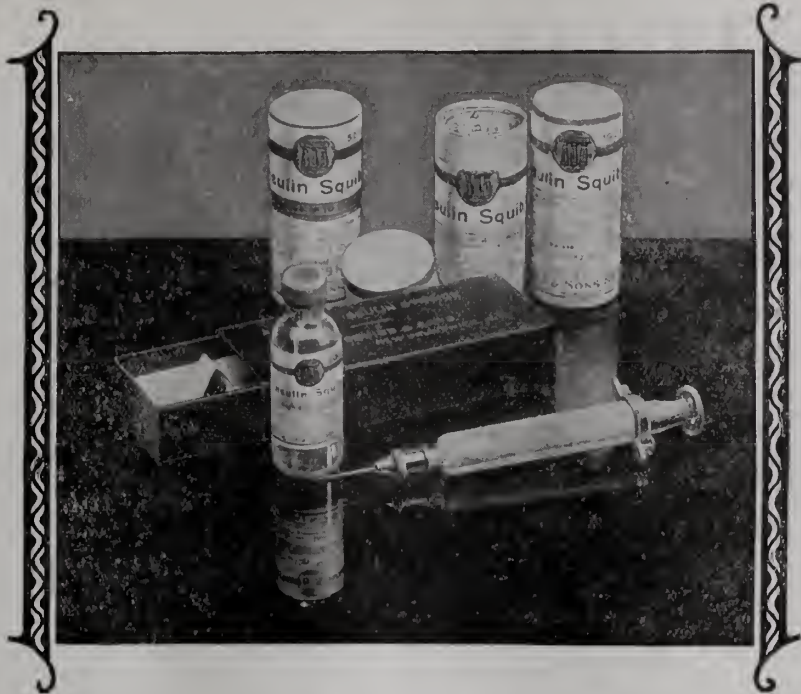
The annual diphtheria summary in this issue (p. 1005) affords one of the most encouraging records of recent years in preventive medicine. From 1910 to 1920, little improvement could be demonstrated in diphtheria mortality in most cities. In 1910-1914, only thirteen cities averaged rates under 10; in 1915-1919 and again in 1920-1924, there were only eighteen cities that could be so classed; but in 1924 there were thirty-seven and in 1925 forty-nine with diphtheria rates practically unknown anywhere before 1910. There can be little doubt that the amazing reduction in recent years is to be attributed in large part to the increasing immunization of school children with toxin-antitoxin mixtures or with anatoxin. This conclusion seems warranted, not only by the observations in individual cities like New York where the method has been extensively employed, but by the rapid decline in diphtheria mortality

throughout the general population. In 1923, the diphtheria death rate in the large cities of the United States was 13.14; in 1924, it was 11.15, and in 1925, 9.88. Something may doubtless be credited to the curative side, since the use of antitoxin is probably more widespread and more effective each year; but the fact that since immunization measures began to be applied the diphtheria rates, previously almost stationary, have suddenly and decisively dropped, indicates that the latter is the main factor. If the improvement of the last three years continues, diphtheria may well be an almost negligible factor in the mortality returns of 1930.—*Jour. A. M. A.*, April 3, 1926.

HYPODERMIC DIGITALIS PREPARATIONS

Harold E. B. Pardee, New York, *Journal A. M. A.*, Oct. 31, 1925), found in the course of using intravenous injections of digitalis preparations in the treatment of patients with cardiac decompensation, that the manufacturers' claim as to potency, and particularly their recommendations as to dosage, were far from correct. It has never been properly demonstrated that any of these supposed advantages of the intravenous use of digitalis are actual facts, and so it seemed advisable to investigate the activity of these preparations. It seemed especially important because they are commonly and widely used in the most severe cases and in emergencies, when the difference between a sufficient and an insufficient dose might be vital to the patient. It seemed best to do the whole work with the human heart, using the change in the "T" wave of the electrocardiogram as an indicator of digitalis activity and also the showing of the rate of a previously untreated auricular fibrillation. These two are the earliest digitalis effects to appear after the administration of a sufficient dose of the drug, and the use of the "T" wave change as a method of testing various tinctures of digitalis has been previously reported on by the author. He used as a measure of the potency of a digitalis preparation the smallest dose that will diminish the amplitude of the "T" wave, calling this "T" wave unit. He has expressed this dose in fractions of a minim per pound of the patient's weight, because Eggleston's demonstration of the relation of body weight to digitalis dosage has been well proved by experience. It was found that the clinical activity of the different tinctures tested was inversely proportional to the size of the dosage that would effect the "T" wave. Less of the more potent tinctures would be needed than of the weaker ones.

At present he reports on the testing of digifolin Ciba, the digitan ampules of Merck, digalen (Cloetta) and the Burroughs Wellcome tablets of amorphous digitalin. The minimal effective dose of each of these preparations was found to be much larger than suggested by the manufacturer for the therapeutic dose, so much larger that if the printed suggestions as to dosage were followed, the patient would certainly fail to receive an effective dose, and so to benefit from the medication. In the case of tincture of digitalis by mouth it has been found that the full therapeutic dose was from eight to ten times the minimal effective dose as determined by the "T" wave change. He does not believe it is ever proper to give the full calculated therapeutic dose of a digitalis preparation at one time, because of the likelihood of producing a considerable degree of poisoning in some susceptible patients. One half of the amount by mouth, four or five times the minimal effective dose, is safe, however, and will produce definite digitalis effects. This works out to about 1 minim per pound of the liquid preparations, slightly more for the digifolin and digalen than for digitan, and 4/100 grain of the digitalin per 70 pounds, which would be eight of the 1/100 grain tablets for a patient of 150 pounds. It is always necessary, when suggesting large doses of any digitalis preparation, to emphasize the need of making certain that the patient has not been receiving digitalis in any form during the previous two weeks. The drug is sometimes so slowly eliminated that a patient may retain an unexpectedly large proportion of a previous dose, and the additional effect of the later dose may cause unpleasant toxic symptoms. The doses here recommended are only for patients who have not had any digitalis within the previous two weeks. For patients who are under the influence of digitalis at the time, the dose should be reduced to one quarter or one half of that recommended, to from 30 to 60 minims, depending on the estimate of the degree of the patient's previous digitalis saturation. This reduced dose should be repeated at six-hour intervals if needed. Further observations are needed to settle the question of promptness of action. The facts just noted make it seem likely that it is more dependent on a mass effect of digitalis—the large size of the dose—than on the greater promptness with which the drug comes in contact with the heart muscle after intravenous administration. We must not rely then on minimal intravenous doses when in need of a prompt effect, though it is possible that somewhat smaller doses are needed by vein than by mouth.



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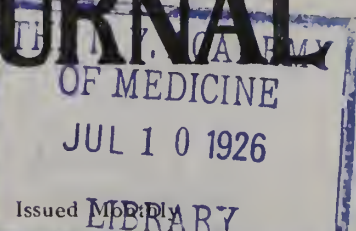
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ORIGINAL ARTICLES

ADDRESS BY THE PRESIDENT*

DR. HALSEY DEWOLF

PROVIDENCE, R. I.

Fellows of the Rhode Island Medical Society:

A year ago at this time you listened, with much consideration, to an Annual Address, dealing in large part with the history and early doings of our Society. Today, I will ask you to recall with me, briefly, the more immediate past, as it bears upon the Society and its individual members, as well as to discuss those present and future policies which may seem to hold promise for the Society's welfare and usefulness.

We have grown in numbers, from a small group to a big one; in activities, from the debating club of a few physicians to an organization representative not only of the medical profession, but of the whole people of the State, in so far as this people is affected, at least, by things pertaining to its physical health. It is our body that should guide the public in such matters as health service, nursing activities of various kinds, industrial medicine, health legislation, periodic health examinations, medical school inspections, control of milk, regulation of the cults, medical education, hospital operation, and other such increasingly vital problems. To what single body, rather than to the State Medical Society, can or should our people properly turn for wise counsel in directing these matters, so important to social and economic life?

Our responsibility, as a group, is great; as individuals, it can be no less.

It is we who touch most closely the daily lives of the great public, touch them at moments when, keenly alive to its own health problems, it is most susceptible to right instruction as regards the larger problems that concern the general welfare. Here lies our daily opportunity, as individuals, to mould into wise forms the opinion of the public in

matters of community health. The sum total of our individual efforts becomes the combined policy of this Society.

To accomplish, however, we must be accomplished, and to that end keep alive to and in touch with the situation at our doors. As the President of the American Medical Association said in his recent Annual Address:

"The physician of the present and future must be an integral part of our civilization and much concerned with its changes."

It is no longer possible for us, as physicians, to consider our whole duty performed in tending the bodily ills of our patients; we of necessity, by right of training, experience and present knowledge of the progress of medicine, must keep them informed and so help to mould a vigorous and right public opinion. To do this, we ourselves cannot exist merely as individualists—we must establish professional contacts, in the Societies and with the agencies of Public Health and preventive medicine. To us in Rhode Island, and especially in Providence, such contact, at one point surely, can be only a privilege, a pleasure, and an inspiration. Visitors come from afar to learn from *him*, medical literature of all countries refers and defers to him; we who can so easily find him in the corner of our City Hall miss much if we do not often seek his counsel. One admirer from Brazil, enthusiastic if not quite accurate, refers to him as Charles Chaplin, which to those of us who know how he can amuse, as well as instruct, may not be so beside the mark. As we love and respect him, so let us always back him, and urge our patients to do likewise, in his great work of furthering the Public Health.

How, now, have we acquitted ourselves in this public duty during the immediate past? First of all comes to mind the yeoman service rendered by our Legislative Committee, with its efficient Chairman; those not closely connected with the part played by this Committee during the present year can hardly appreciate the time and energy devoted by it to the two Medical Bills introduced in the last Assembly.

*Read before the Rhode Island Medical Society, June 3, 1926.

Formulating the bills, in part, discussing and rediscussing, compromising and moulding, in brief, devoting a most serious effort to place before the Legislature means of improving the standing of those practising the healing art in our State, as well as to render more efficient and far reaching State control of health affairs, was this Committee's contribution during the past year. The course and fate of these bills is past history; their failure to become law does not negative the fact that, in so far as they contained much that was vitally and progressively looking towards the better health of our State, they establish a ground work for future effort in these directions. It is the sense of your House of Delegates that the effort be continued next year to pass in the Legislature a suitable Medical Practice Act.

Your Committee on Education has given to the public a series of radio talks, valuable in the extreme. That such talks, given anonymously by the best qualified men, are of great public use, has been proven. That they are ethical, as is every honest effort, by lecture, written article, screen demonstration, or otherwise, when openly sponsored by such a society as this, I, for one, do not question. If we, in these and other ways, do not give the lay public all benefit of our correct and ever advancing knowledge of preventive and other medicine, the charlatans, of whom we complain so bitterly, will instruct this same public incorrectly, to its and our own permanent hurt.

Our By-Laws read, "It shall be the duty of the President to visit other County Societies, etc."

This wise provision, instituted by our fathers, has in it the very foundation spring of this Society's life, in that it provides a means of reminding us of the unity of our organization, the oneness of the various County Societies with the State Society. Unfortunately, but one such visit was accomplished this year, but it is to be earnestly desired in the future that such contacts be frequent and cordial, and that the Secretaries of the County Societies do not fail to notify the State President of their expected meetings.

Your special Committee on Medical Education established a series of clinics at the various hospitals of the State, to which I will refer later.

Realizing the many activities involving the public health of our State which should be of moment

to this Society, as well as the increasing number that must develop, as our community life and modern methods further expand, the question arises as to the appointment of a Public Health Committee, whose function should be to establish close contact with the various health agencies.

Such a committee should keep informed of the progress of industrial and public health nursing, of City and State Board programs, of proposed health examinations, of hospital developments, in fact, of all those more general interests in which our State Society should have a pronounced influence. Such a committee must play an active, not a passive, part, hold an aggressive, not alone a receptive, attitude in establishing this State Society as a vital, if not *the* vital, factor in State health. I suggest for your consideration and personally recommend the appointment of such a committee.

Here let me call attention to the remarkable increase in bed capacity of our existing hospitals during the past two years, together with the erection of several entirely new institutions.

A normal increase of population has, no doubt, been one element in bringing about this increase, but the striking success in education of the public towards hospitalization has been probably a still more important factor in the result. Since January, 1924, there have been added to the already existing capacity of our hospitals, 488 beds, through additions to old or the erection of entirely new plants, to which could properly be added the 100 beds at the Jane Brown Hospital, established not long before the above date.

The new hospitals at Westerly and Wakefield, the new buildings at Woonsocket and Pawtucket, are assuredly of lasting credit to their several communities. In Providence itself, the Miriam Hospital was established to fill a real need, as was the Homeopathic; the activity of the latter since its opening proves beyond question one thing, at least: that many well qualified physicians of the city, unattached to any staff of our larger hospitals, were in dire need of a well run, thoroughly equipped institution, to which they might send their patients.

The new Lying-In, which present prospects indicate will be opened by the first of next year, must prove a benefit to the whole of Rhode Island,

and is the result of a demand, in this type of work, for larger and more modern quarters than could be found in the old building.

Our State Hospital for Mental Diseases grows, sad to relate, far more quickly in the number of patients than in proper housing and accommodation for their care. This should not be a political, so much as a humanitarian and medical affair; any word that this Society can say in urging appropriations for this necessary expansion, it should say, and say boldly and forcefully.

This work of hospital expansion accomplished in the past two years has cost \$2,440,000; add to this a small addition at Howard, and the Jane Brown opened a year or so earlier than our arbitrary date, January, 1924, and the total reaches \$3,000,000, a considerable sum to be contributed by the people of our small State. Of the sum total, not of money alone, but of countless hours of planning, of devising schemes to touch the worthy rich and influence the less worthy, though equally rich; hours of discouragement, hope, of despair and final accomplishment, of this total many of our own members have borne their full share. It is that they shall receive credit for their loyalty and devotion to the cause of upbuilding the housing of scientific medicine in this State, that I venture to discuss the matter in this address.

Finally, as regards this recent extraordinary hospital expansion, I would emphasize that it is not alone the increase of beds and the large contribution from a generous public that is important, but more especially that the new laboratories and modern facilities for the proper study and care of disease indicate a broadening of our medical life here in Rhode Island.

CLINICS

Perhaps the most significant, as well as interesting, activity of the Society during the year past was its proceeding to establish clinical conferences in the various hospitals. The purposes of this move were broadly threefold: First, to give to the medical practitioner (specialist or otherwise) of Rhode Island an easily available opportunity to study, at first hand, (largely by the case or clinical method) the more recent advances in scientific handling of disease; second, to offer to those qualified the chance to correlate their knowledge and pass it on to others; and third, so far as possible,

to open the doors of our hospitals, with their large clinical material, to all those physicians who chose to enter.

Those especially interested, you may understand, labored under no delusions "of grandeur," so to speak; held no belief that through these open doors the medical populace would flock; nor, on the other hand, that from amongst the clinicians would spring up a considerable crop of Oslers, Janeways and Mayos.

The desire and hope was merely to place medicine in this State of Rhode Island on a par with and in a position even to lead those many other states in which our profession is alert and progressive. In other words, to produce and keep ever producing "Better Doctors of medicine."

The Committee, appointed by your direction, decided after serious discussion that in the first year of these conferences, *all* localities and *all* principal hospitals of the State should be asked to co-operate. By so doing, it was felt that clear proof would develop as to where interest in this movement would or would not exist. Also, it was decided that the list of subjects should be as broad and inclusive as possible, in order to establish the quality of our clinicians (many probably born to blush unseen) as well as the tastes of those attending the conferences. Finally, out of a large group of those supposedly competent to hold the clinics, selections, for the first year, were made at the Committee's best judgment, with the avowed intention of calling upon others later, should the conferences prove successful.

Please bear in mind that, although in considerable doubt as to whether it was best to hold so many conferences in such widely separated hospitals and over a period of so many months, your Committee purposely adopted the program with which you are familiar in order that all interested should have full opportunity to show that interest.

And now the result. Statistics are boring, and should be omitted from any well regulated address. However, these few may be of interest:

One hundred sixty-nine enrolled for the conferences, out of approximately 700 physicians eligible. Seventy-five men held or assisted in the conferences. The attendance varied from 39 to 1, the 1 in that instance being the clinician. The attendance at Newport was so small at first, with

so little interest shown, that the later clinics were omitted. Westerly, at which place a number of very high grade clinics were held, showed but little interest and proved a distinct failure. Woonsocket held several clinics, fairly well attended, while the Memorial Hospital at Pawtucket, during the Fall months, at least, provided some excellent clinics with good attendance. The Providence hospitals' clinics were, in general, successful, although those at the City, probably as fine as this country anywhere could produce, were not so well attended as they deserved.

The clinics in medicine and surgery, as was to be expected, drew the greatest numbers, from 10 to 35, while the special clinics generally showed 5-15 in attendance.

The quality of the clinics, it is just to say, was high; especially so, when we consider that the clinicians, with few exceptions, were men unaccustomed to teaching. Your Committee is most grateful to them, one and all, for their willing co-operation, their sincere and, no doubt, often laborious preparation, as well as for the results achieved, helpful to themselves as well as to others. An effort at evaluation of the facts above stated was made by your Committee, in sending the questionnaire received by each member of the Rhode Island Medical Society last month. The replies numbered a little more than 100, about one-fourth of the membership. Twenty-five per cent. would seem to be about our "limit of interest," so to speak, as twenty-five per cent. is our limit of attendance at meetings, except, of course, the annual dinner. A study of this list, with the names signed, is interesting, not so much for the signatures attached, as for those missing. One is surprised at the number of high grade, scientific, seemingly progressive names, conspicuous by their absence. To all those who may recognize themselves, let me say, "make haste to join us in this move for the betterment of medicine in Rhode Island."

Answers to the questionnaire established several facts, as the basic opinion of your Society, i. e. Last year there were too many clinics; they should not have been held during the winter months (January, February and March), and they were too long, certainly in some instances. All answers intimated that the conferences should continue

during the coming year, though this definite question was not incorporated in the questionnaire.

Acting upon these facts, your Committee has recommended to the House of Delegates that the conferences be continued, with many changes, and the House of Delegates has appointed a committee entrusted to carry out the plan.

The radical changes, it may be of interest to you to know, will be these: clinics to be held only through October, November and to December 15th, and through April and May; the hour to be 11:30 instead of 11 A. M., and the time occupied only what the clinician may feel he needs, probably about one hour.

The teaching will be confined to men within the State for these very good reasons; i. e., our own men, inexperienced in teaching, could not hope to compete at present with experienced teachers from without the State, with the inevitable result that their clinics would not flourish, but eventually fail, and, moreover, we already have ample opportunity to hear from outside talent at our numerous medical meetings.

Names of some clinicians appearing on the roster last year will be omitted and new ones added, so that too great a burden may not be placed on one group, and also that a greater number may have the chance for self training as well as giving to others.

I have thus, purposely, in some detail, gone into this matter of clinical conferences, since I believe it to be of great importance, and one about which you should be thoroughly informed. I am convinced that, with a fair degree of success last year, the plan, as reconstructed, will yield far better results, as being easier of accomplishment, both for clinician and student.

I urge you to co-operate by teaching, enrollment or both, this next season, and also by encouraging others to join. We cannot stand still, nor do we want to. Graduate medical teaching is abroad in the land; the public demands it, while the increase of the many cults urges us to keep our edifice in a state of the highest efficiency.

Our experience of the past year was partially if not wholly successful and decidedly beyond what many expected and some pessimists declared possible; we can get out of it and give into it only by going into it.

Finally, any suggestions bearing upon the plan will be most welcome to your Committee.

As I "lay down the gavel," after nearly two years of service, I would leave with you a few very personal thoughts. First, thanks that you have borne with me so long and in so friendly a spirit; second, that what you may have got from me is a small part of what I have taken from you, i. e., the inspiration that a large and influential body must give to its presiding officer, and, even more important, the feeling of responsibility for its progress that must come to the one to whom such a society entrusts its leadership. For both of these and the honor you have shown me, I thank you.

And now, in confidence, let me say that the closer you get to the activities of such a Society as this, the more do you appreciate its value to the body medical, the body politic and truly to the body public. As I have attempted to show, you are a great force for good in the land, if you will only exert that force. Go to it, vigorously, and so fulfill your destiny.

Remarks of Acceptance by the Incoming President,

DR. PARTRIDGE

I appreciate very deeply the honor you have paid me, and I also will say with the honor comes great responsibility. Dr. DeWolf was right when he said that a body like this in any state ought to be a great influence for good and ought to have a great influence over the public health matters, and so I ask co-operation from all of you. I believe that in this state we have a great many men that can give us good papers, and I shall ask a great many of you to do it, and I hope a great many of you will volunteer also. I thank you very much.

Dr. Fred R. Jouett, Cambridge, Mass., delegate from the Medical Society of Massachusetts—

I can only say that I am very glad to be here as a representative of the Massachusetts Medical Society and to extend the cordial greetings of the Massachusetts Society, especially those of Dr. Stone, President of the Society.

PIGMENTED MOLES

Among the most important and most difficult aspects of a practitioner's work are such little lesions as the nevi. Frequently the physician must decide whether or not a pigmented mole is malignant or benign; and if benign, whether or not it is likely to assume malignancy. The melanin forming cells, specific in their function, are called melanoblasts. These melanoblasts are able to produce pigment and to give rise to other cells of their own nature. They lie in the basal cell layer of the rete malpighii and can produce pigment in response to any adequate stimulus. The production of a nevus involves the departure of these cells from their original epithelial nature and their migration into the corium. This phenomenon may occur anywhere in the body but is found more often on the face and neck, perhaps because of the likelihood there of irritation. Since the cells, after migration, are still capable of producing melanin, they may, after a period of slow growth, become quiescent, or they may undergo malignant change. In those nevi which remain benign, the regression that takes place is a fibrosis. This does not mean, however, that all benign moles will remain macular, become less noticeable and fade in color. Some of them may become wartv, nodular and mamillated. The size or contour of the nevus, then, is not in itself an indication of safety or of danger. A complete study of melanomas has just been issued as a monograph, forming a single issue of a foreign periodicle. Dr. James W. Dawson there indicates the significant signs in a mole that is undergoing malignant change. Increased vascularity and pigmentation, or superficial ulceration with periods of bleeding and subjective symptoms, are signals of warning. A history of trauma or mechanical irritation is usually obtained in such cases and is not to be taken lightly. Such history and signs justify wide extirpation, and a microscopic study of the tissue removed will show pigmentation and proliferation beyond the area in which pigmentation can be detected by the naked eye. If extirpation is not sufficiently wide, not only has pathologic tissue been left in situ, but also more harm than good may have been done by opening channels of metastas into subepidermal layers or into the lymphatic node of adjacent regions. Should the lymph nodes be involved, Pringle advises "excision of the tumor, with a good zone of healthy skin around it and a somewhat larger zone of the underlying deep fascia, up to and including the nearest anatomical group of glands at least; and all that is removed should be in one continuous strip as far as possible."—*Jour. A. M. A.* Oct. 31, 1925.

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RHODE ISLAND MEDICAL SOCIETY

Meets the first Thursday in September, December, March and June

H. G. PARTRIDGE	<i>President</i>	Providence
NORMAN M. MACLEOD	<i>1st Vice-President</i>	Newport
ARTHUR H. HARRINGTON	<i>2nd " "</i>	Howard
JAMES W. LEECH	<i>Secretary</i>	Providence
J. E. MOWRY	<i>Treasurer</i>	Providence

DISTRICT SOCIETIES

KENT

Meets the second Thursday in each month

G. HOUSTON	<i>President</i>	Arctic
C. S. CHRISTIE	<i>Secretary</i>	Riverpoint

NEWPORT

Meets the third Thursday in each month

WILLIAM S. SHERMAN	<i>President</i>	Newport
ALEXANDER C. SANFORD	<i>Secretary</i>	Newport

Section on Medicine—1st Tuesday in each month, Dr. Charles A. McDonald, Chairman; Dr. C. W. Skelton, Secretary and Treasurer.

R. I. Ophthalmological and Otological Society—2d Thursday—October, December, February, April and Annual at call of President Dr. Jeffrey J. Walsh, President; Dr. Francis P. Sargent Secretary-Treasurer.

The R. I. Medico-Legal Society—Last Thursday—January, April, June and October. Dr. Creighton W. Skelton President; Dr. Jacob S. Kelley, Secretary-Treasurer.

PAWTUCKET

Meets the third Thursday in each month excepting July and August

STEPHEN A. KENNEY	<i>President</i>	Central Falls
LESTER J. GILROY	<i>Secretary</i>	Pawtucket

PROVIDENCE

Meets the first Monday in each month excepting July, August and September

ROLAND HAMMOND	<i>President</i>	Providence
P. P. CHASE	<i>Secretary</i>	Providence

WASHINGTON

Meets the second Thursday in January, April, July and October

M. H. SCANLON	<i>President</i>	Westerly
WM. A. HILLARD	<i>Secretary</i>	Westerly

WOONSOCKET

Meets the second Thursday in each month excepting July and August

J. V. O'CONNOR	<i>President</i>	Woonsocket
J. M. MCCARTHY	<i>Secretary</i>	Woonsocket

EDITORIALS

CHILDREN'S LAWS

The legislature recently adjourned passed some twenty or more laws that should be of interest to medical men. Some of these laws directly affect our hospitals, and those concerning "baby farms" are intended to control situations where a doctor in the majority of cases recently had a hand.

Compared with the laws of a half a century ago, there is a decided smack of socialism in these

changed statutes, but viewed in the light of the present day, they are mild enough. Well administered, there is a tremendous amount of work involved and much good to be accomplished. The tendency, referred to as mildly socialistic, consists in the granting of certain rights to the State, such as the licensing of all maternity hospitals, all homes where infants and children are boarded, other than with blood relatives; all day nurseries and institutions where children are cared for in lieu of the natural home. Obviously, such laws in classifying all births, and residence of infants and children who are outside their normal custody, is

to protect the illegitimate and unfortunate child from death and misfortune. To further aid, some very mild changes have been made in our laws concerning the parentage and inheritance of illegitimate children. All this work will be carried on beginning the first of July by the State Public Welfare Commission.

The part which the medical man may play is not so slight as might at first be suspected. First as obstetrician, and second as family adviser, he will be aware early of situations which he should know are covered by statute. He will be in a position to observe whether or not the cases were reported as required, not primarily to obtain convictions, but to give to a state bureau facts which will enable it to see that children receive a good and substantial bringing up. He ought never to find himself searching for a word which will serve as a cause of death, and at the same time cover the fact that a child who was born out of wedlock has died, long before the money paid the baby farm has all been used up.

Such legislation, to be the most effective, should be based on a very broad and humanitarian conception; namely, that of service and not ethics. It has only physical existence with which to deal and not the "why" of physical existence. In the liberal carrying out of these statutes, there should be the maximum of sympathetic aid and the minimum of prosecution, except where manslaughter has been committed, then justice should be swift and severe. The medical men of the State can be of the greatest assistance if they will but make the effort.

DEATH RETURNS

For many reasons it is very important that the cause of each death should be accurate, complete and truthful. Without accurate statistics, improvement in methods of treatment of and prevention of disease is greatly hampered. Very often medico-legal questions of great importance arise and the administration of such and the protection of the public rest upon the reliability of death returns.

It is surprising how frequently returns are so poorly recorded by the physician that the registrar cannot determine what the real cause of death is.

It is usually due to thoughtlessness and carelessness on the part of the doctor. Once in a while, however, the inaccuracy is purposeful because of some medico-legal bearing, or to spare the feelings of the family.

Physicians generally do not realize that the U. S. Census Bureau lays down certain rules as to how deaths shall be recorded and what diagnoses of disease are acceptable. Every health officer in the United States living within the registration area must follow these rules. The rules are not made alone by the Census Department, but are the result of deliberations of national and international agreements and drawn up by eminent physicians. The local health officer must report all deaths to the State Health Department, and he in turn must report each death within the state to the U. S. Bureau of Census. Failure on the part of the state to make such reports in a satisfactory manner results in the state being excluded from the registration area. There are several states in the Union which have failed to perfect death registration to a point of accuracy that they will be recognized by the U. S. Census Bureau. As years go by, the Census Bureau is more and more exacting. If the cause of death is not fully explained by what is written upon the death return the physician receives a letter from Washington asking for further information. A diagnosis of broncho-pneumonia, for instance, will not be accepted unless it states whether it was associated with influenza, measles, whooping cough, etc., or develops without any apparent cause.

The average physician feels that he must write upon the death return a diagnosis in two or three words. This is particularly true of beginners, for little thought is given in hospitals to show house officers how death returns should be made out. The health officer and Census Bureau want all the facts, not only the diagnosis, but any facts supporting the diagnosis. For instance, a return may state the cause of death as pulmonary tuberculosis, but it is important whether the sputum contained tubercle bacilli or whether there was an autopsy or not. Moreover, the patient might die from a pulmonary hemorrhage and no mention of this is made upon the return. All laboratory, operative and other data bearing upon the diagnosis should be recorded.

Some of the returns are very crude. The cause of death in one instance was intestinal hemorrhage while on investigation it was found to be due to typhoid fever. Very often operative procedures are omitted. The cause of death may be stated to be as cancer of the stomach, yet no mention of post operative hemorrhage or, perhaps, of sepsis occurring a few days after a laparotomy. The findings at operations are extremely important in determining diagnoses and a statement of these findings should be recorded.

It is not expected that the cause of every death can be accurately stated. Every physician, however, in justice to himself, to the public and to the medical profession, should use every legitimate means to determine the cause of death and on the death return record his diagnosis and such supporting evidence as he can produce.

SURGERY

The practice of surgery reaches far back in history. It is, however, only since the discovery of ether and antiseptics that modern surgery had its birth. The lives which have been saved and the amount of human suffering which has been relieved cannot be measured. Surgery and preventative medicine are the two most notable achievements in the history of medicine.

If one will but peruse the reports of hospitals it will be possible to realize the amount of surgery being performed every year. In fact, the major portion of the patients are sent to the hospital for surgical treatment.

Surgical measures are so efficacious in the hands of good surgeons and the fees are so attractive that it behooves the medical profession to guard this life saving method of treatment and prevent its abuse. Physicians owe it to themselves and to the public, else the confidence now reposed in the doctor will be lost.

Naturally the number of physicians who are interested in general surgery and surgical specialties has increased tremendously. Conditions have reached a point where everybody desires, the younger men especially, to become a surgeon, with the result that many are attempting major surgery with little experience, not realizing or at least

not heeding their limitations. Some of the surgery being done is unnecessary and a positive menace to the public. It has reached a point where people are re-acting against surgeons because of the large fees demanded and results of poor surgery.

One contributing factor which tends to increase the number of surgeons is the fact that the last few months of an interne's hospital service has been in the surgical wards and operating room. He leaves the hospital with the idea of becoming a surgeon. If the last service an interne has in a hospital was in the medical wards a smaller number of would-be surgeons would be graduated. In fact, the most useful training that a physician receives is during the medical service and because of its importance it deserves to be put last in his hospital training.

There is another phase of interne training that is sadly overlooked. During his surgical service he is assisting almost entirely with major surgery. The average physician will get little from this service except experience in surgical diagnosis because he will never do major surgery. Minor surgery and fracture cases are looked upon with more or less contempt, whereas minor surgery is of far greater importance to the average physician. This training can be supplied in the accident room and out patient department. Likewise, in the medical wards are patients in well advanced stages of disease, many of them comparatively rare. The interne receives little experience in the diagnosis of serious disease in the earlier stages and none in the less serious conditions commonly seen in people who will appear in his office when he begins practice. This experience can be and should be supplied by service in the out patient department. Experience in the out patient clinics should be furnished at the close of his hospital training. He should then be able to profit more in examining ambulatory patients than earlier in his internship. In fact, the hospital can not afford to allow him to work in the out patient department where he is given any responsibility until the closing months of his service.

Surgeons should be fewer and better trained. Each candidate should prepare himself most carefully and serve an apprenticeship to a good ethical surgeon until his ability has been vouched for by practical demonstration under his tutorship.

SOCIETIES

RHODE ISLAND MEDICAL SOCIETY

COUNCIL

Annual Meeting

May 18, 1926.

The Council was called to order at 4:30 P. M. by the President, Dr. Halsey DeWolf.

The Treasurer's report as follows was read and referred to the House of Delegates with approval of the Council. The Treasurer reported the following members in arrears for dues since 1922: Dr. J. J. Hoey, Dr. J. N. Lewis, Dr. L. E. Norris.

Adjourned.

J. W. LEECH
Secretary

HOUSE OF DELEGATES

Annual Meeting

May 18, 1926.

The House of Delegates met May 18, 1926, at the Medical Library, Dr. DeWolf, the President, in the chair.

The following officers for the year 1926-27 were elected:

President—Dr. H. G. Partridge.

First Vice President—Dr. Norman MacLeod.

Second Vice President—Dr. Arthur H. Harrington.

Treasurer—Dr. Jesse E. Mowry.

Secretary—Dr. J. W. Leech.

Committee on Arrangements

Dr. Eliot A. Shaw, Dr. Guy W. Wells, Dr. Wilfred Pickles, Treasurer ex-officio.

Committee on Legislation, State and National

Dr. F. T. Fulton, Dr. H. E. Harris, Dr. Chas. H. Holt, President and Secretary ex-officio.

Committee on Library

Dr. C. S. Westcott, Dr. J. G. Walsh, Dr. J. A. Mack.

Committee on Publication

Dr. F. N. Brown, Dr. C. W. Skelton, Dr. J. A. Young, President and Secretary ex-officio.

Committee on Education

Dr. W. P. Buffum, Jr.; Dr. E. H. Wing, Dr. Edward L. Myers, President and Secretary ex-officio.

Committee on Necrology

Dr. Peter P. Chase, Dr. Stanley Sprague, Dr. Wm. P. Davis.

Curator—Dr. C. D. Sawyer.

Auditor for two years—Dr. Jos. C. O'Connell.

The secretary read the Annual Report of the Council, which was duly accepted.

Dr. Leonard E. Norris was dropped from membership for non-payment of dues.

The secretary presented his annual report as follows:

HOUSE OF DELEGATES

May 18, 1926.

It was voted to fix the annual dues of the Society for the ensuing year at \$10.00.

The invitation of Dr. Harrington, Supt. of the State Hospital for the Insane, that the Society hold its September meeting at Howard, was unanimously accepted.

A resolution from the Society at its last meeting requesting the President to appoint a committee of five to arrange a suitable testimonial to Dr. C. V. Chapin was adopted.

Attention was called by Dr. Kingman of instances where physicians, while keeping up their dues in the Rhode Island Medical Society, have allowed their membership in the component District Society to lapse. It was voted to instruct the secretary to confer with the secretaries of the District Societies in order to devise plans to obviate this practice.

Adjourned.

J. W. LEECH
Secretary

Annual Financial Report, 1925

EXPENDITURES

Collations and Annual Dinner Expenses	\$739.68
Expenses of Secretary (Sec. hire)	75.00
Stenographer at Meetings	10.00
Printing and Postage	118.33
Gas	39.81
Electricity	61.15
Fuel	683.75
Telephone	75.87
City Water	8.00
House Supplies and Expenses	124.14
House Repairs	543.02
Librarian	1,404.00
Janitor	600.00
Journals (Ely Fund)	67.41
Books	51.50
Rhode Island Medical Journal	390.00
Safe Deposit	5.00
Insurance (for three years)	209.05
Treasurer's Bond	25.00
Membership—Civic Club	5.00
Flowers sent to Funerals	40.00
	<u>\$5,275.71</u>
Cash on Hand	<u>2,197.22</u>
	<u>\$7,472.93</u>

1925.

Jan. 1. Chase Wiggin Fund	
By Indebtedness to Rhode	
Island Medical Society...	\$6,892.21
	<u>\$6,892.21</u>

1925.

Jan. 1. H. G. Miller Fund	
By Indebtedness to Rhode	
Island Medical Society...	\$5,359.10
Interest	250.00
	<u>\$5,609.10</u>

1925.

Jan. 1. J. W. C. Ely Fund	
1 Bond So. California Edison Co.	\$980.00
Interest on same	50.00
8 Shares Mechanics National Bank Stock	480.00
Interest on same	24.00
	<u>\$1,534.00</u>

1925.

Jan. 1. Endowment Fund	
Saline Electric Co. 1st Mort.	
6%	\$2,000.00
Interest on same	120.00
Cash on Hand	884.46
Interest on same	38.12
	<u>\$3,042.58</u>

1925.

Jan. 1. Printing Fund	
By Indebtedness to Rhode	
Island Medical Society...	\$1,677.52
	<u>\$1,677.52</u>

RECEIPTS

Cash on Hand January 1, 1925	\$2,282.33
Annual Dues	3,803.00
Donations	963.00
Ely Fund	74.00
Harris Fund	300.00
Interest on Daily Balance	50.60
	<u>\$7,472.93</u>

1926.

Jan. 1. Chase Wiggin Fund	
To Loan Rhode Island Medical Society	\$6,892.21
	<u>\$6,892.21</u>

1926.

Jan. 1. H. G. Miller Fund	
To Loan Rhode Island Medical Society	\$5,359.10
Rent H. G. Miller Room....	250.00
	<u>\$5,609.10</u>

1926.

Jan. 1. J. W. C. Ely Fund	
1 Bond So. California Edison Co.	\$980.00
8 Shares Mechanics Bank Stock	480.00
Paid R. I. Medical Society (for Journals)	74.00
	<u>\$1,534.00</u>

1926.

Jan. 1. Endowment Fund	
Cash on Hand	\$1,042.58
Saline Electric Co. 1st Mort.	
6%	2,000.00
	<u>\$3,042.58</u>

1926.

Jan. 1. Printing Fund	
To Loan Rhode Island Medical Society	\$1,677.52
	<u>\$1,677.52</u>

1925.	
Jan. 1.	E. M. Harris Fund
	1000 Pacific Gas & Electric
	Co. 1st Mort. 6%..... \$1,000.00
	Interest on same..... 60.00
	2000 Southern Ill. Street &
	Power Co. 1st Mort. 6%..... 2,000.00
	Interest on same..... 120.00
	2000 Ohio Service Co. 1st
	Mort. 6% 1,970.00
	Interest on same..... 120.00
	<hr/> \$5,270.00 <hr/>

Special Meeting

Medical Library, March 9, 1926.

A special meeting of the Rhode Island Medical Society was called by Second Vice President, Dr. Norman MacLeod, the President and First Vice President being absent.

The Chairman stated that the purpose of the meeting was to consider the legislative problems before the Society, and to get the expression of opinion of the Society upon past and future activities of the Society and its Committee on Legislation.

Dr. Fulton, Chairman of the Committee on Legislation, State and National, reviewed the political situation in regard to the attempts of the chiropractors to have passed legislation legalizing their treating the sick. He pointed out the necessity of the medical profession presenting some form of constructive legislation in order to combat similar efforts this year, and for this purpose the original Healing Art Bill was introduced.

The Healing Art Bill, the State Board of Health Bill and the action of the House of Delegates and of the Committee on Legislation was discussed by many members from the floor.

On motion of Dr. Ventrone, duly seconded, it was voted that the action of the Society, March 4, 1926, by which a vote of confidence of the Society in the Committee on Legislation in its action in regard to pending legislation was denied, be rescinded and that the Society affirm and approve the action of the House of Delegates in its action upon legislative matters now under its consideration.

Ayes 45, Noes 1

It was moved and seconded to approve the Peck Bill for the reorganization of the State Board of Health. Ayes 37, Noes 2. Passed.

Adjourned.

J. W. LEECH, M.D.
Secretary

1926.	
Jan. 1.	E. M. Harris Fund
	1000 Pacific Gas & Electric
	Co. 1st Mort. 6%..... \$1,000.00
	2000 Southern Ill. Street &
	Power Co. 1st Mort. 6%..... 2,000.00
	2000 Ohio Service Co. 1st
	Mort. 6% 1,970.00
	Paid Rhode Island Medical
	Society for repairs on
	building 300.00
	<hr/> \$5,270.00 <hr/>

J. E. MOWRY, Treasurer.

ANNUAL MEETING, JUNE 3, 1926

The 115th Annual Meeting of the Rhode Island Medical Society was held June 3, 1926, at the Medical Library, Providence, R. I. The meeting was called to order by the President, Dr. Halsey DeWolf, at 10 A. M.

The minutes of a special meeting of the Society, and of the annual meetings of the Council and the House of Delegates, were read by the Secretary.

On behalf of the Massachusetts Medical Society, Dr. Thomas Almy of Fall River, and Dr. Frederick R. Jouett, Cambridge, delegates, extended the good wishes of their Society to the Rhode Island Medical Society.

Dr. Eric Stone, Chairman of the Fiske Fund, made his annual report.

Dr. Kingman, Chairman of the Committee on Necrology, read memorials of members who have died during the year 1925-26, namely:

Dr. James F. Gilbert
Dr. Frederick Edwards
Dr. Abiram F. Squire
Dr. Thomas F. Darby
Dr. George L. Collins

Dr. Hammond, delegate to the American Medical Association from this Society, reported upon the annual meeting of the House of Delegates of the American Medical Association.

The President appointed the following Fellows a committee to arrange for a suitable testimonial of Dr. Charles V. Chapin.

Dr. J. M. Peters
Dr. H. G. Partridge
Dr. J. W. Leech
Dr. J. C. O'Connell
Dr. C. W. Skelton

The following papers were presented:

1. "Demonstration of Models of Pathology of the Bladder Neck," Eric Stone, M.D., Providence.

2. "The Operative Treatment of Fractures," Charles L. Scudder, M.D., Boston, Asst. Professor of Surgery, Harvard Medical School. Discussed by Drs. Ridlon and Hammond.

3. "Corrective Rhinoplasty," Howard E. Blanchard, M.D., Providence. Illustrated with two reels of animated moving pictures, courtesy J. Eastman Sheehan, M.D., New York. Discussed by Dr. Keefe.

At 1 P. M., the meeting adjourned for luncheon which was served in the Library Building. At 2 o'clock the afternoon session was opened by the following papers:

1. "The Benign Cervix with Special Reference to Treatment by the Cautery." This paper was read by Dr. A. Corvese and discussion opened by Dr. I. H. Noyes, who illustrated his remarks by lantern pictures of cases. Further discussion by Drs. McCann, Pitts, and Waterman.

2. "Cancer Symposium," by members of the staff of Memorial Hospital, New York:

a. "Prevention and Treatment of Certain Malignant Tumors," Frank E. Adair, M.D.

b. "Experimental Studies on the Production of Mammary Cancer," Halsey Bagg, Ph.D.

The foregoing papers were discussed by Drs. Greenough, Pitts, Ridlon and Adair.

Dr. DeWolf then presented the annual address of the President, after which the President elect, Dr. H. G. Partridge, was inducted into office.

Adjournment was taken at 5:30, to reassemble at the Metacomet Golf Club for the annual banquet at which Dr. Edward S. Brackett, Providence, R. I., was anniversary chairman, and Dr. Chas. Upson Clark of Quebec was the speaker of the evening.

J. W. LEECH
Secretary

Annual Report of the Secretary
1925-1926

I submit herewith the annual report of the Secretary upon the slate and activities of the Rhode Island Medical Society for the year 1925-1926.

Regularly quarterly meetings have been held and have been well attended, largely by reason of the interesting programs offered. Through the courtesy of the Washington District Medical Society, the September meeting was held in Westerly.

The new Westerly Hospital was inspected by the Fellows, and an enjoyable dinner served at the Oaks was presided over by Dr. Scanlon, President of the local society. The splendid hospitality accorded the Fellows by Washington District Medical Society is deeply appreciated.

The membership roll of the Society to date comprises:

Active members	406
Non-resident members	28
Honorary members	8

This shows a net gain of sixteen (16) members over the total active members of 1924-25 (390). This gain in membership is, I feel, directly traceable to the closer co-operation of the District Societies with the State Society—a condition desirable and indeed necessary if the medical profession in Rhode Island is to be a well-knit and efficient organization for the betterment of its members.

Again this year it is my sad duty to record the death of a past president and treasurer, Dr. George L. Collins. Eminent ability as physician and surgeon and sterling character kept for Dr. Collins in the sunset of his life that respect and friendship of his colleagues which he had won in an active professional life.

The complete roll of deceased members for the year 1925-26 is as follows:

Dr. James F. Gilbert, Woonsocket, R. I., July 1, 1925; Dr. Frederick Edwards, Wyoming, R. I., August 12, 1925; Dr. Abiram F. Squire, Newport, R. I., October 4, 1925; Dr. Thomas F. Darby, Riverpoint, R. I., November 23, 1925; Dr. George L. Collins, Providence, R. I.

This year has been a forward-looking one in many respects. Acting upon the well-considered advice of our President, the Society instituted a series of clinics at the various hospitals of the state conducted by our own membership. The response to this move has been gratifying and justifies the expectations and hopes of its initiator—Dr. DeWolf.

Another and a new activity under the direction of the Committee on Education, State and National, Dr. George Crooker, chairman, is the radio-broadcasting of talks on medical subjects in a manner suitable for the laity to understand.

Perhaps the most conspicuous activity, at least from a publicity standpoint, was the Society's

action along legislative lines, especially its support of the Healing Art Bill and the bill for the reorganization of the State Board of Health. The Committee on Legislation, State and National, Dr. Frank Fulton, chairman, gave much thought and time to these matters.

I purposely deal thus somewhat sketchily upon the work of these two committees, as detailed reports of their work will be rendered this body by the respective chairmen, but I feel the thanks and appreciation of the Rhode Island Medical Society are but the just due of these committees for the earnest and worth-while service they have rendered the Society.

In November, your Secretary attended a Conference of Secretaries of the State Medical Societies in Chicago, held annually under the auspices of the A. M. A. As this conference also included editors of State Medical Journals, our Editor, Dr. Frederick N. Brown, also attended. While many of the problems discussed at this meeting had slight bearing upon the problems of our small organization, nevertheless, valuable suggestions and inspiration were gathered from contact with men from all parts of the country. There was much discussion of the subject of Periodic Health Examinations, and it may not be amiss to suggest that this Society appoint a committee to consider the advisability of the Society endorsing and promoting ways and means for the instituting of annual examinations of the people by the family physician. The purpose of these examinations is, of course, to anticipate morbid processes in the preclinical stage, and if well-carried out, offer tremendous potentialities for good.

The approaching end of the fiscal year 1925-26 finds me with mingled feelings of satisfaction and regret—satisfaction with the progressive activities of the Society, the high standard of its scientific programs throughout the year and generally healthy condition of the Society in its various phases; regret that it brings to close an unusually delightful association in the conduct of the Society's affairs with our President, who has given most generously of his counsel and guidance in the many problems which are inherent in any organization such as this. My feeble expression of appreciation of the able and interested administration by Dr. DeWolf of the duties of the Pres-

ident over a longer and more trying term than is usually the lot of that officer will, I am sure, find a most hearty echo from every member of the Rhode Island Medical Society.

Respectfully submitted

J. W. LEECH
Secretary

*Report of the Legislative Committee to the
House of Delegates*

May 18, 1926.

The Committee has had an usually active year. The net results, so far as legislation is concerned, however, have not been great.

The section in the Workmen's Compensation Law which was introduced into the Senate a year ago, providing for more money for prolonged hospital cases so that the surgeon who has the care of a serious hospital case may receive some pay, became a law this year. This provides for a maximum amount of \$150, exclusive of the hospital expenses.

A measure which was supported by the Committee, the House of Delegates and the Medical Society, was a bill for the reorganization of the State Department of Health. This, in the opinion of the Committee, was badly handled, and the Committee is willing to admit lack of foresight in giving its approval to the methods which were pursued. As is generally known, the measure originated with the *Providence Journal*, and was brought before the House of Delegates for their approval by this committee. Approval was given, and practically unanimous approval of the bill was also voted at a meeting of the Rhode Island Medical Society. The measure itself was meritorious, but as events proved, the method of procedure was very unfortunate because it brought on antagonism on the part of the State Board of Health and others, with the result that the measure failed to get out of the House Committee. It is, of course, much easier to see a mistake afterward than it is to anticipate it. What the outcome would have been had there been an effort to obtain the co-operation of the State Board, some of the members of which would without much doubt have co-operated, is hard to say.

The legal work in connection with this bill was done by Mr. Walter Edwards.

The advisability of another immediate attempt to reorganize the State Board of Health would seem unwise.

The Committee last year had quite a struggle to prevent the bill licensing chiropractors being enacted, and this year, with the help of Mr. Smith and Mr. Jacobson and others of Edwards & Angell's office, a bill was drawn up having as its fundamental principle satisfactory requirements in the basic sciences, in pathology and diagnosis for everyone whose intention is to treat the sick. One rather radical feature was to have these examinations under the supervision of the Board of Education and conducted by teachers in some of the educational institutions. The bill in its final form seemed to be in most respects quite satisfactory, inasmuch as among other things it provided for a regular practitioner to examine in pathology and diagnosis and as there are several practitioners on the staffs of the teaching institutions. This passed the Senate but failed to pass the House. The Society is much indebted to Edwards & Angell's office, and at the very last Mr. Claude Branch spent a great deal of time and effort, particularly in the last twenty-four hours, interviewing members of the House Judiciary Committee in favor of the bill, but for various reasons, the chief of which, of course, was the opposition of the chiropractors, the bill failed to pass. Mr. Branch wrote a letter stating that in his opinion a well organized campaign another year might bring about the passage of the measure, and that he would be glad to do anything he could to help. A letter from Mr. Easton of the House Judiciary Committee was received which also spoke favorably of the bill after the session was over.

The Committee is of the opinion that it would be worth while to continue efforts to have enacted a law for the licensing of those who are to treat the sick similar to that proposed at this last session of the legislature. If such an effort is continued, the committee feels that there should be from time to time meetings of the House of Delegates for the purpose of conferring with the Committee on Legislation in regard to the measure. The Committee also believes that any future action along this line should include an attempt to determine what proportion of the physicians of the state would approve such a measure. Unless a large propor-

tion of the members of the profession should approve, it would probably be quite difficult to enact such a law.

This report would be entirely incomplete without mentioning the very diligent and vigorous support of Senator Clifford, who, as time went on, understood more and more the purpose of the Healing Art Bill and was extremely helpful in getting it into as good shape as it finally was and in getting it through the Senate.

DR. F. T. FULTON

Chairman

Committee on Education

George H. Crooker, Chairman

To the House of Delegates of the Rhode Island Medical Society:

The Committee on Education, after due consideration, decided to broadcast under the auspices of the Society a series of health talks couched in such language that the talks would be fully understood by the layman and of such a nature as to be attractive and instructive. Approached on the matter, the Outlet Company readily agreed to furnish its studio for the broadcasting. Beginning in October of last year, one of a series of health talks, twenty-nine in number, has been broadcast each week from Station W. J. A. R.

The following is a list of the subjects of the talks, the speakers, and the dates on which they were given.

	1925
The Discovery of Ether Dr. Charles V. Chapin	Oct. 16
Smallpox and Vaccination Dr. Eugene P. King	Oct. 23
Measles and Convalescent Serum Dr. Dennet L. Richardson	Oct. 30
Diphtheria Dr. Harmon P. B. Jordan	Nov. 6
Prenatal Care Dr. Herbert G. Partridge	Nov. 13
The Baby: Its Proper Food Dr. Henry E. Utter	Nov. 20
The Pre-School Child Dr. Harold G. Calder	Nov. 27
The School Child Dr. Ellen Stone	Dec. 4
Tuberculosis in Childhood Dr. John I. Pinckney	Dec. 11
Tuberculosis in Adults Dr. Harry L. Barnes	Dec. 18

	1926	
Periodic Health Examinations Dr. Alex. M. Burgess	Jan.	1
Milk Prof. Frederic P. Gorham	Jan.	8
Sunlight Dr. A. Roland Newsam	Jan.	15
Mental Health and Juvenile Delinquency Dr. Harvey B. Sanborn	Jan.	22
Nervousness in Children Dr. Paul J. Ewerhardt	Jan.	29
Prevention of Nervous Disorders Dr. Arthur H. Harrington	Feb.	5
Heart Disease Dr. Frank T. Fulton	Feb.	12
The Eyes Dr. N. Darrell Harvey	Feb.	19
The Tonsils and Nose and Throat Troubles Dr. Frank M. Adams	Feb.	26
Cancer Dr. Herman C. Pitts	March	5
Bellyache Dr. Albert A. Barrows	March	12
Indigestion Dr. D. Frank Gray	March	19
Birth Control Dr. Frank A. Cummings	March	26
Care of the Skin and Scalp Dr. Carl D. Sawyer	April	2
Hay Fever Dr. Charles F. Gormley	April	9
Constipation Dr. Geo. S. Mathews	April	16
Tuberculosis Dr. Jay Perkins	April	23
The Tired Child Dr. Wm. P. Buffum, Jr.	April	30
Vacation Typhoid Dr. James Hamilton	May	7

Judging from many letters and telephone communications received in commendation of the talks, your Committee feels that they have been instructive and quite worth while.

It seems fitting to the Committee at this time to put on record its appreciation of the courtesy of the Outlet Company, for without their hearty co-operation, the broadcasting would not have been possible. The Committee wishes to express its appreciation also to those members of the Society who gave the talks, and it hopes that other members may be willing to give a series of talks in the fall and winter coming.

The Committee has ruled that the papers to be read over the radio be submitted for approval by the Committee before delivery; that they are the property of the Society and shall be deposited in the Library.

The Committee on Education offers its co-operation to the Committee on Legislation and to other

committees having under consideration matters which they deem to require this sort of publicity.

Objection having been made to the publication in the newspapers and to the broadcasting of the names of the members of the Society giving the talks over the radio, the Committee unanimously agreed that this feature should be eliminated. All the talks with the exception of the first four were simply announced as being given under the auspices of the Rhode Island Medical Society.

Respectfully submitted

GEORGE H. CROOKER, Chairman

Committee on Education

Committee on Publication

Mr. President and Members of the House of Delegates:

The literary affairs of the *Journal* are progressing as usual and present no outstanding difficulties, although it may not be amiss to reiterate that some of our bi-monthly contributors have not broken away from the chronic habit of beguiling the editor, and it is indeed necessary to possess a very buoyant and optimistic mind to expect contributions to be on hand upon the date of going to press (that is, the 10th of the month), reminder cards notwithstanding.

It is with benevolent sorrow that the Editor contemplates this lack of personal responsibility in those who have accepted—I should like to say assumed—a very definite and positive obligation.

As is not uncommon in all publications, there are at times expressed or implied sentiments appearing in our columns that are repugnant to the sensibilities of some of our readers, and friendly suggestions have been offered as to the withdrawal or correction of these items; we would not willingly offend, and it is possible that the facts have, upon occasion, been overdrawn; nevertheless, they are based upon foundation of fact and the old "saw," "that where there is smoke there is also fire" must be borne in mind; we therefore ask a continued indulgence. We welcome and invite these friendly criticisms, and as an expression and in a spirit of frank open-mindedness suggest that such be sent in the form of "Letters to the Editor," that said criticisms may be published over the signature of the sender for the consideration of all interested.

The finances of the *Journal* have not materially changed, although we were forced upon the first of the year to increase our advertising rates to keep abreast of our large expense.

We have, however, nearly three hundred dollars in bills as yet uncollected. Our energetic business manager entertains the belief that the major part of this amount is recoverable, and is acting accordingly.

Respectfully submitted

FREDERICK N. BROWN

Chairman of the Publication Committee

Clinical Conference Committee

The meeting was called to order at 4:30 P. M., April 29, 1926, at the Medical Library, Dr. DeWolf in the chair.

The purpose of the meeting was to consider the results of the clinics, the question of recommending their continuance, and possible changes in methods, types and time of the clinics.

Dr. Richardson reported the results of answers to a questionnaire sent to all subscribers by the Committee upon the foregoing points.

From data obtained from personal observation of members of the Committee and attendance books, it appears that the clinics were well attended in Providence and also in Pawtucket save in mid-winter, but that those held in Woonsocket, Westerly and Newport did not receive the support it was hoped they would.

The Committee makes the following recommendations to the House of Delegates:

The clinics for the year 1926-27 be held at the Rhode Island Hospital, St. Joseph's Hospital, Providence Lying-In Hospital, Woonsocket Hospital and Pawtucket Memorial Hospital.

Clinic hour 11:30.

Length of clinic approximately one (1) hour. *

Clinics to be held in October, November and first half of December, April and May.

Only Rhode Island physicians to conduct clinics.

Treasurer's report, showing a balance of \$952.32 as of March 1, 1926, was received and placed on file.

J. W. LEECH

It was voted that the Committee on Clinical Conferences be continued.

THE FISKE FUND AWARD

Report of the Secretary

Ninety-first Annual Report of the Trustees of the Caleb Fiske Fund. Officers of the current year: Dr. DeWolf, Chairman; Dr. Norman McLeod, and Dr. Partridge; Dr. Eric Stone, Secretary.

Three essays were presented for the current prize of \$300.00 on the subject "Recent Progress in Prevention and Treatment of Scarlitia Measles and Diphtheria." The prize was awarded to Dr. Elliott S. Robinson, of 375 South Street, Jamaica Plain, Mass.

A prize of \$250.00 is to be awarded to the winning essay in 1927 on the subject "Calcium Metabolism as Related to Therapy."

There follows the financial report.

On deposit at the Institute of Savings		
Balance from last year.....	\$701.25	
Interest to January, 1926.....	28.32	
		\$729.57
On deposit at R. I. Hosp. Trust Co.,		
No. 17847		
Balance from last year.....	\$383.08	
Interest to April 30, 1926.....	13.84	
		\$396.92
For advertising disbursed.....	80.90	
		\$316.02
On deposit May 18, 1926.....		
On deposit at R. I. Hosp. Trust Co.,		
No. 25312		
Balance from last year.....	\$10,947.32	
Interest to April 30, 1926.....	442.36	
		\$11,389.68
Total deposits May 18, 1926.....		\$12,435.27

Respectfully submitted

ERIC STONE

Secretary for the Trustees

PROVIDENCE MEDICAL ASSOCIATION

The regular monthly meeting of the Providence Medical Association was held at the Medical Library, 106 Francis Street, Monday evening, April 5, 1926, at 8:45 o'clock with the following program:

"An Unusual Case of Tuberculous Meningitis," by Roy Benton, M.D.; "Comments on Epididymitis," by Eric Stone, M.D.; "Treatment of Scoliosis," by Henry McCusker, M.D. Discussion opened by Murray S. Danforth, M.D.

The Standing Committee approved the application for membership of Edward T. Streker and he was duly elected.

A collation followed.

PETER PINEO CHASE, M.D.

Secretary

The regular monthly meeting of the Providence Medical Association was held at the Medical Library, 106 Francis Street, Monday evening, May 3, 1926, at 8:45 o'clock, with the following program:

"A Case of Spinal Cord Tumor," by Jerome J. McCaffrey, M.D., and Lucius C. Kingman, M.D. Discussion was opened by Charles A. McDonald, M.D., and Robert C. Robinson, M.D. "A Study of Obscure Kidney Pain in Women," by James A. McCann, M.D. "The Significance of Blood Sedimentation Time in Gynecology and Obstetrics," by Ira Hart Noyes, M.D., and Anthony Corvese, M.D.

A collation followed.

PETER PINEO CHASE, M.D.
Secretary

HOSPITALS

THE MEMORIAL HOSPITAL

The following is a report of the May meeting of the Memorial Hospital Staff, held May 6, 1926:

Meeting called to order at 9:15 P. M. by President Wheaton.

Minutes of March meeting read and approved.

Members present: Drs. Wheaton, Kenney, Hussey, Shaw, Kerney, Oulton, Jones, Lutz, Chapian, Sprague, Wing, Touzjian, Triedman, Gilroy, Houston.

Reports of the various services were read and approved.

Drs. Hussey and Jones were appointed as a committee to confer with the American College of Surgeons representative when he makes his visit to the hospital the latter part of May.

Dr. Sprague read a very interesting paper on "Chronic Prostatitis."

Paper discussed by Dr. Kerney.

Meeting adjourned at 10:15 P. M.

JOHN F. KENNEY, M.D.
Secretary

ANNOUNCEMENT

IMPORTANT ANNOUNCEMENT

Mail Directory Information Card Promptly

During the month of June, every physician in the State should have received a Directory infor-

mation card. Every one is urged to fill out and return the stamped card regardless as to whether he or she has changed their residence or office address.

This information will be used in compiling the Tenth Edition of the AMERICAN MEDICAL DIRECTORY, now under revision in the Biographical Department of the Association. The Directory is one of the altruistic efforts of the Association and is published in the interest of the medical profession which means ultimately in the interest of the public. It is a book of dependable data concerning the physicians and hospitals in the United States and Canada.

AMERICAN MEDICAL ASSOCIATION.

June 15, 1926.

BOOK REVIEWS

OCULAR THERAPEUTICS

By Ernest Franke

The C. V. Mosby Co., Publishers

This book is an epitome of up-to-date treatment of diseases of the eye, exclusive of optical and operative means. It is concise but inclusive and as a book of reference for the oculist it is admirably arranged and gives a quick survey of tried methods, general, local and special.

The reviewer suspects that it is practically a syllabus of lectures by Doctor Franke. No words are wasted, nothing is left out—a valuable book.

A CLINICAL GUIDE TO BEDSIDE EXAMINATIONS

By Drs. H. Elias, N. Jagic and A. Luger
of Vienna, Austria

Arranged and translated by

Dr. William A. Brams
Chicago, Ill.

Rebman Company, Publishers
New York

A concise and judiciously arranged schema of a bedside examination; complete enough for a general examination of the patient, yet not too cumbersome; bringing to mind many points frequently overlooked, and offering a very complete index for quick reference.

The nomenclature in some instances is unique. A truly useful gift.

C. C. DUSTIN, M.D.

OBITUARY

GEORGE LEWIS COLLINS

George Lewis Collins was born in Providence, February 10, 1852, and died in that city, March 16, 1926. His father was the late George Lewis Collins, M.D. He fitted for college at Mowry & Goff's School, taking the classical course. He entered Brown in 1870, where he took the three year course, graduating in 1873 with the degree of Bachelor of Philosophy. He received the degree of Doctor of Medicine from the Harvard Medical School in 1879, but during these years he pursued courses of medical study not only in that institution but in various European institutions at Leipzig, Vienna and Paris, and in both continents had frequent experience of practice in hospitals. Returning to Providence in 1879, he served at the Rhode Island Hospital, St. Joseph's Hospital, Providence Lying-In Hospital, St. Mary's Orphanage, St. Vincent de Paul Infant Asylum and the Providence Shelter for Colored Children.

He served as Secretary to the Providence Art Club, 1886-87, and had a long and important connection with the Providence Athenaeum, being elected a director in 1886, second Vice-President in 1916, and first Vice-President in 1917. He served as secretary of the Library Committee from 1912 to 1923, when he retired on account of failing health. In 1893 he was elected a trustee of the University, a position which had been held by his father. He was a member of the Rhode Island Medical Society, Providence Medical Association, American Medical Association, and the American Academy of Medicine. He served as secretary of the Fiske Fund of the Rhode Island Medical Society and published a pamphlet on "State Control of Medical Practice," the Annual Address of the President of the Rhode Island Medical Society in 1889.

JAMES F. GILBERT, M.D., D.D.S.

James F. Gilbert, M.D., D.D.S., died from septic poisoning on July 2, 1925, in the forty-eighth year of his life.

His education was received in the grammar and high schools of Woonsocket, R. I., following which he entered the Dental Department of the

Baltimore Medical College in 1895. He was awarded the first honor for the highest standing in his class on graduation in 1898. For a time after graduation he was a member of the staff of his alma mater. After practicing a while, he studied medicine and obtained the degree of M.D. and then specialized in oral surgery. Post-graduate courses in eye, ear, nose and throat were completed at the Harvard Medical School. He was appointed to the Rhode Island State Board of Registration in Dentistry in 1907, and continued his service without interruption up to the time of his death. In addition he was chief oral surgeon, Woonsocket Hospital; member of the Woonsocket District Dental Society, Woonsocket District Medical Society, Rhode Island Dental Society; Assistant Surgeon, Department Eye, Ear, Nose and Throat, Woonsocket Hospital. He was also a member of sectional and national dental societies. His death resulted from an accidental infection while in the performance of his work.

THOMAS FRANCIS DARBY

Born 1875.

Graduated Baltimore Medical College, 1898. Since that time he was engaged in general practice at Riverpoint, where he died November 23, 1925.

FREDERICK EDWARDS

Born 1851.

Graduated University of Vermont Medical School, 1875.

Dr. Edwards was for many years engaged in general practice in Providence. On retiring from practice, he went to Wyoming, R. I., to live, and died there August 12, 1925.

ABIRAM F. SQUIRE

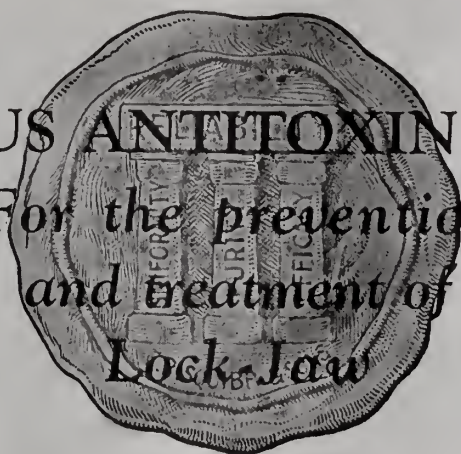
Born in Buffalo, N. Y., 1846.

Enlisted in the Union Army, 1862.

Graduated Harvard Medical School, 1867. Began practice in Newport, R. I., in 1873 as a partner of the late Dr. Stanton. He was on the board of consultants of the Newport Hospital and a member of the Newport Medical Society. For many years he was an active member of the G. A. R. After fifty-two years of general practice, he died at Newport of apoplexy October 4, 1925.

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THE RHODE ISLAND MEDICAL JOURNAL



N. Y. ROYAL
MEDICAL

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VOLUME IX {
No. 8. } Whole No. 203

PROVIDENCE, R. I., AUGUST, 1926

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Contents continued on page IV advertising section

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Dec. 2,	Emp. of			Jan. 15,	Lapland	Fed. Star	\$750 up
	Scotland	Can. Pac.	\$1800 up	Jan. 22,	Homeric	Thos. Cook	\$1000 up
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Jan. 6,	Resolute	United Am.	\$2000 up	Jan. 29,	Transylvania	F. Clark	\$600 up
Jan. 12,	Franconia	Thos. Cook	\$2250 up	Feb. 3,	Rotterdam	Holl. Am.	\$930 up
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THE RHODE ISLAND MEDICAL JOURNAL

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Issued Monthly under the direction of the Publication Committee

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ORIGINAL ARTICLES

THE CEREBRO-SPINAL FLUID,—ITS HISTORY, PATHWAYS AND CLINICAL VALUES.*

By JOHN E. DONLEY, M.D.,
PROVIDENCE, R. I.

The progress of research in three departments of study, anatomy, physiology and bio-chemistry, has converted modern medicine from a craft of mere tradition and sagacity to an applied science of analysis and law; from a descriptive code of surface phenomena to the discovery of far deeper affinities; from a set of rules and axioms of quality to measurements of quantity. As the result of these questionings three fluids of the body, the blood, the urine and, latterly, the cerebro-spinal fluid, have disclosed a few at least of their mysteries, so that by a knowledge of their permutations we can ameliorate some of our clinical perplexities. Of one of these, the cerebro-spinal fluid, I purpose to attempt some compendious story; describing, first, one or two crucial events in the history of its discovery; then saying a brief word about its pathways in the central nervous system; and finally indicating, rather than describing, some of the more important clinical values of its study. And, as we observe the eager efforts of our fathers to understand the fabric of the brain and its working, we shall, I doubt not, pay them due gratitude for having sailed uncharted seas that we may enjoy our present heritage. Furthermore, it will appear how, in the laborious growth of medicine, the busy hand and the observant eye, by their insistent curiosities, have compelled the mind from high imaginings to the study of concrete realities.

Among those brilliant children, the Ionian Greeks, we discern the beginnings of neurological speculation. While Pythagoras, pre-eminent amongst the early philosophers who exercised a

lasting influence on medicine, clearly differentiated mental affections, it was a young contemporary of his, Alkmaion of Crotona (500 B. C.) who first established that the brain is the organ of intellect and the seat of sensation and movement. For Hippocrates (460-377 B. C.) the brain is the seat of intelligence; by it we think, understand, see and hear, know what is base and honorable, good and evil, pleasant and unpleasant; it is the chief organ in man, the messenger and instrument of the intellect. From the brain itself humor flowed to the nose, and if free and unobstructed purified the brain, but if restrained and obstructed, became acrid and corrosive, thus producing much disturbance of the system and derangement of the mind. The structure of the brain was imperfectly known to the Hippocratic physicians, for it is merely described as double, and divided in the center by membranes, of which the upper is hard and the lower soft and intimately applied to the brain. The membranes of the spinal cord are described but not the cord itself. Plato in the *Phaedo* admits the hegemony of the brain as being the seat of intelligence and perception, but Aristotle, no great admirer of the brain, declared it to be compounded of earth and water; hence, he said, it was a cold, dry and bloodless organ, the function of which was to cool the heat and fervor of the heart, which for him was the seat of life, perception and sensation.

Thus among the earliest Greeks we discern only the most general and inchoate ideas concerning cerebral structure and function, ideas which were possible to men of brilliant imagination and speculative power but which as yet, in the absence of anatomical investigation, were lacking in differentiation, variety and precision. Although the Greeks, in their ardor to generalize, could not always wait to read what Plato calls the "long and difficult language of facts," yet in the third pre-Christian century was made at Alexandria, a splendid beginning, too soon alas, eclipsed, of cerebral anatomy and physiology by Herophilus, Erasistratus and their successors. So much had this Alexandrian research advanced the knowledge of

*Read before the Rhode Island Medical Society, March 4, 1926.

neurology that in the reign of the Emperor Trajan (100 A. D.) Rufus of Ephesus could summarize contemporary knowledge of cerebral anatomy thus: In the interior of the skull is the brain, larger in man with respect of his bodily size than in other animals. There are two meninges, one thick and strong, attached to the bones of the skull; the other thin and spread out over the brain. These two envelopes are membranous and fibrous and possess a certain sensibility. The upper surface of the brain is pulpy and viscous and its convolutions and fissures have been likened to varicosities. The brain has a gray appearance. Its inferior and posterior surface is called the base and the prolongation which arises from the base is the *parencephalon* or *cerebellum*. The cavities within the brain are known as ventricles and the membrane which lines them is called the choroid. From the brain spring the sensitive and motor nerves through which we feel and produce voluntary motion and by which are accomplished all the activities of the body. From the brain arises the spinal cord which emerges from the occipital opening in the skull and passes down the spinal column crossing all the *vertebrae*. The spinal cord is not a special substance but rather a continuation of the brain. As from the brain, so from the spinal cord, are given off nerves some of which are motor while others subserve sensation. From the brain proceed nerves to the organs of sense such as the ears and the nose. One of these nerves arises from the front of the base of the brain and having divided into two branches sends one to each of the eyes.

As the torch of Greek learning in philosophy, literature, politics and natural science passed from Ionia through Athens and Alexandria to Rome, so likewise did the knowledge of Greek medicine, fed from these earlier springs, find its culmination and its term in Galen of Pergamos, (131-200 A. D.) physician to Marcus Aurelius and the last representative of the original Hellenic tradition in medicine. This great physician who founded experimental physiology and, multiplying the gifts of Alexandria to anatomy, largely increased its riches, occupies a pre-eminent position in our story of the cerebro-spinal fluid, for he it was who for more than fifteen centuries promulgated the dogmas of cerebral anatomy and physiology; nor is his in-

fluence dead even now, for in the pale ghosts of "morbid entities" he continues still to plague the thoughts of some modern physicians. In the ventricles of the brain he enthroned those ancient animal spirits which, like an Oriental despot, reigned there until their tyranny, attacked in the eighteenth century by *Cotugno*, was in the nineteenth ended forever by *Magendie*. Indeed one may say that the story of the cerebro-spinal fluid is just the account of men's attempts to take spirits out of the ventricles and to put fluid into them. What then was Galen's teaching concerning the content and functions of the cerebral ventricles?

We shall perhaps, more easily apprehend his views if we begin in the abdomen and work upwards to the brain. According to Galen the first digestion of food occurs in the stomach which is assisted in its work by the warmth transmitted to it by the four lobes of the liver. From the stomach the food passes into the small intestine whence as chyle it is conveyed by the portal vein to the liver which, for the generations of physicians before *Harvey*, was the great organ of blood formation. In the liver the crude chyle is subjected to the influence of the *spiritus naturalis* which converts it into nutritive blood. One portion of this blood ebbs and flows from the liver through special veins which convey it to the tissues, there to serve for nourishment. Another portion leaves the liver and coursing through the hepatic veins and ascending *vena cava* reaches the right side of the heart. And here another marvelous thing occurs, which is as follows: One moiety of the blood in the right heart enters the pulmonary artery and passes to the lungs which it serves to nourish; the other portion enters the left ventricle, drop by drop, through the invisible pores which Galen believed to exist in the inter-ventricular septum. During its brief stay in the left ventricle the blood again undergoes a process of perfecting which is accomplished by the *pneuma*, that subtle, aetherial principle which enters the body with air during respiration and having during diastole, reached the left ventricle by way of the pulmonary veins, permeates the blood, endowing it with vital spirits, which with the blood are distributed by the arteries to all parts of the body. Now some of this blood charged with vital spirits, is conveyed by the carotid arteries to the base of the brain, and here it meets in the choroidal plexuses of the lateral ven-

trices, the pneuma which had previously entered the anterior part of the ventricles through the numerous openings in the ethmoid bone. From this conjugation of the pneuma from the air and the vital spirits contained in the choroidal plexus blood are distilled the animal spirits which, filling the ventricles and permeating the substance of the brain, serve as the organ of the soul and the principle of sensation and of motion. These extraordinary animal spirits formed in the lateral ventricles, pass through the openings connecting the lateral with the third ventricle and thence by way of the aqueduct of Sylvius into the fourth ventricle which they leave to enter the spinal cord and the peripheral nerves. The brain possesses a movement synchronous with respiration which serves to drive the animal spirits out of the ventricles into the nerves. As for the impurities of the brain, the grosser are discharged through the ethmoids into the nose and mouth while the finer particles escape through the cranial sutures. Such then in outline was the cerebral physiology which, by his only too skilful dialectic, Galen riveted upon physicians and philosophers for fifteen centuries. And even today when we speak of high spirits and low spirits and animal spirits we pay our meed of tribute to the dead physiology of Galen.

Although the subarachnoid fluid was mentioned by Valsalva in the early eighteenth century, it was in 1764 that Dominico Cotugno, a young physician of Naples, published his dissertation entitled *De Ischiade Nervosa* or *The Nervous Sciatica*. In this little book he demonstrated for the first time that not any impalpable spirits occupied the cerebral ventricles and the spinal subarachnoid spaces, but rather a watery medium; and so by Cotugno was opened the way for Majendie who gave to the cerebro-spinal fluid its name and wrote the first great modern treatise on the subject.

I am pleased to be able to read to you Cotugno's original account of his discovery, for only after much searching was I able to obtain a copy of this important essay.

How, then did this young man Cotugno come to discover that for fifteen centuries men were mistaken in their beliefs about the presence of animal spirits in the cerebral ventricles? As physician to the Great Neapolitan Hospital for Incurables, Cotugno was interested in the study of sciatica, for

no doubt he was constantly meeting with patients who were suffering the tortures inflicted by this painful malady. His view of the pathology of sciatica was this—that it was caused by a too abundant or a too acrid fluid flowing from the spine into the sheath of the sciatic nerve. Cotugno was trying to find out the pathology of sciatica as a preliminary to its rational treatment when, by his dissections, he showed that the ventricles and the subarachnoid spaces contained a watery fluid. And this is what he says about it: At first therefore it is necessary to premise that the hollow of the spine which from the great foramen of the occiput reaches to the extremity of the os sacrum, through which the spinal marrow descends, is larger in men than in other animals; for it is so large that it not only affords a convenient passage for the marrow as it does in other animals, but although the marrow, in proportion to the brain, which is larger in men, is also fuller than in other animals, the capacity of the spine far exceeds the size of the marrow; so that around the marrow descending in the spine, there is a considerable space remaining. This space is not entirely devoid of matter, for through it descends the dura mater which being formed into a tube, from the great foramen of the occiput, incloses the spinal marrow like a sheath. This tube of the dura mater is not so large as to touch the surrounding enclosure of the spine on all sides, nor so narrow as to embrace the included marrow closely; but it is somewhat distant from the hollow of the spine, chiefly backwards towards the seat of the spinal apophyses, and is separated from the circumference of the enclosed marrow by a considerable space. These two spaces, when a man is in health, are not empty, but each is filled with a matter peculiar to itself; for all that space which is between the dura mater and the enclosure of the hollow of the spine is always filled with a cellular kind of substance, replete with a soft and fluid kind of fat; in the place of this, in consumptive persons, there is a mucid vapor, and a true mucus in dropsical persons and in foetuses suffocated in difficult labors, a sanguineous vapor. But also all that space which is between the sheath of the dura mater and the spinal marrow, is always found to be filled, not as some eminent men imagine, (because the fact is as yet immersed in obscurity) by the marrow itself, which is more full in living than in dead subjects,

nor by a thick vapor, but with water like that which the pericardium contains about the heart, or such as fills the hollows of the ventricles of the brain, the labyrinth of the ear, or the other cavities of the body which are impervious to the air.

This water which fills the tube of the dura mater even to the os sacrum, does not only enclose the spinal marrow but even abounds in the cavity of the skull and fills all the spaces which are between the brain and the surface of the dura mater. Some of these spaces are always to be met with about the base of the brain; and it is not uncommon to find a considerable space between the surface itself of the brain and the surrounding dura mater. This is principally to be found in consumptive persons and old men . . . so that it seems we may lay it down as a certain truth that the space which is filled with water around the spinal marrow in men increases with age, for this space which is not found in a foetus, where the marrow is embraced by the tube of the dura mater, especially the neck, increases with age and grows considerably larger.

The reason that anatomists have never yet observed this collection of water about the brain and in the spine is owing to the common preposterous method of dissecting, for when they are about to examine the brain they commonly cut off the head from the neck, and by this means the tube of the dura mater, which descends along the spine in the neck, being cut through, all the water that is collected about the brain and the spinal marrow flows out and is foolishly lost; so that when the skull is opened all the spaces between the brain and the dura mater which were before filled with water are now found empty and deceive the anatomists with the appearance of empty cavities which perhaps some volatile vapor filled. Here then nothing at all is found either in the cavities at the base of the skull or in the chief sinuses of the dura mater to prove that they were occupied by some fluid. So that by this irrational method of dissecting all the fluid collected around the marrow and the brain being lost, air enters in and supplies its place.

In order therefore, that such a collected fluid may be plainly observed about the brain and spinal marrow we must carefully make the following experiments. Let the head of the undivided body be put into an erect position; the integuments being dissected and the bones bared, proceed to

separate the bony vault of the skull by an horizontal section. But in beginning thus great care must be taken in cutting the bone or in separating it, not to perforate the adjoining dura mater. If this rule is observed, when the bone is taken off, if it be the head of the body of an old man or consumptive person, we shall find, wherever the dura is pricked, that water will flow out; if the patient be not old or consumptive the dura will appear to be exactly filled with the brain. But after this, let the dura mater be dissected and the brain bared and then water will plainly appear under the arachnoid. After this lift up gently the anterior lobes of the brain and you will see each of the cribiform cells of the ethmoid abounding in water; and upon raising the rest of the brain you will find, at the conjunction of the optic nerves and the sides of the oval protuberance, all those parts which are empty in bodies with severed heads, full of water. This water may fill the sheath of the fifth pair and the whole auditory meatus.

All the space that is around the trunk of the medulla oblongata is filled with water, and if, after the trunk is cut through, the cerebrum and cerebellum be taken away and the body put in an erect position, the tube of the dura mater will be found to be exactly full of water all around the spinal marrow. After this, if you cut through any of the vertebrae of the loins and the lower part of the tube of the dura mater where it embraces the cauda equina you will find a limpid stream flow out and the water which was before observed around the spinal marrow, will gradually descend till it is all emptied by the aperture at the bottom. If you open the vertebrae of the loins before the head is touched and cut the enclosed tube of dura mater, a great quantity of water will burst out, and after all this spontaneous flux of water is spent, if you will lift up the head and shake it towards the aperture, a more plentiful stream will burst out, as if a new fountain was unlocked. In these experiments which I made on the bodies of near twenty adults, and which I repeated at different times, I could draw off freely from the hollow of the spine, four and even sometimes five ounces of water. I commonly found it very clear in such subjects, although it sometimes inclined a little to a yellow color. But in foetuses strangled in difficult labor, little as it was, I observed it to be always red and opaque.

Magendie published his classical researches at Paris in 1842. Let me quote a short extract from his writings as illustrating the spirit with which he set about his work. "This infant," he remarks, "has water on the brain, as the layman puts it. This infant has hydrocephalus, gravely pronounces the physician—repeating literally in Greek what the layman, ignorant of Greek described in his own tongue. But what is this water and whence does it come? These are the questions with which the physician ought to occupy himself." And so well did Magendie occupy himself with them that on only two points have his opinions failed to be corroborated by later researches: first, he believed that the cerebro-spinal fluid was secreted by the pia mater, and second, that although there was no open communication between the lateral ventricle and the basal cistern, he was of the opinion that the cerebro-spinal fluid could diffuse from one into the other. As every one knows he inscribed his name on the foramen of Magendie which is normally from 3 to 5 mm. in diameter.

Briefly, the anatomical relationships of the cerebro-spinal fluid are as follows: It is formed in the lateral, the third and fourth ventricles by the choroid plexuses which lie in these situations. These are highly vascular fringes of invaginated pia mater covered over on their free, ventricular surface by a continuous layer of cubical cells which are continuous with the ependymal covering of the ventricular walls. From the posterior part of the third ventricle, where they are in contact, the two halves of the plexus run forward on either side of the middle line to the foramina of Munro, through which they pass and then turn backwards, downwards and forwards round the inner wall of the inferior horn of the lateral ventricle. Neither the anterior nor the posterior horn contains any plexus. The choroid plexus of these ventricles is supplied by the anterior choroidal, a branch of the main trunk of the internal carotid, and by the posterior choroidal, a branch of the posterior cerebral. The arterial supply to the plexus is thus assured by its derivation from both internal carotid and vertebral arteries. The small choroid plexus of the fourth ventricle is essentially similar in structure to those of the lateral and third ventricles. There is absolutely no communication between the ventricles and the sub-arachnoid spaces except by way of the foramina of Munro into the third ven-

tricle, thence through the aqueduct of Sylvius which tunnels the midbrain into the fourth ventricle, from which the fluid escapes through the central foramen of Magendie at the tip of the calamus scriptorius and the two foramina of Luschka which pass out from the lateral recesses of the ventricle. Having travelled along this route and finding its way into the sub-arachnoid spaces what becomes of the fluid? Where does it go and what are the channels for its absorption? The answers to these questions form a very interesting chapter in recent physiology which has been written in large part by American physiologists. Their main conclusions are as follows:—

The cerebro-spinal fluid is not stagnant, nor like the tides, does it ebb and flow; it actually circulates and forms what Harvey Cushing has recently called the third circulation. As we have seen, the sub-arachnoid space is a closed sack communicating with the ventricles. In most text-books of physiology, as Cushing says, one gathers the idea that the fluid ebbs and flows—a truly Galenic conception—although long ago Key and Retzius gave a hint of the actual state of affairs by suggesting that the granulations of Pacchioni represent portals through which the fluid passes from the arachnoidea into the large meningeal sinuses. This unverified hint was put to experimental proof by Dr. Weed who carried out a long continued sub-arachnoid injection in the living animal, of potassium ferrocyanide and iron ammonium citrate in isotonic solution, with the subsequent immediate fixation of the tissues in an acid medium. This procedure, which served to precipitate Prussian blue granules out of the foreign salts introduced in solution, made it possible to utilize histological methods to identify the situation of the granules in the tissues and tissue spaces. And with what result? Well, instead of a relatively few Pacchionian bodies, it was found that the fluid had passed through the mesothelial cells which cap the arachnoid villi that project in large numbers through the dura into its many venous sinuses, large and small, in all parts of the cranial chamber. With this substitution of countless microscopic arachnoidal villi for the occasional Pacchionian granulation as the essential portals of escape for the fluid, our conception of the process of absorption was greatly clarified: and Weed's subsequent demonstration of the ease and certainty with

which a chronic hydrocephalus of high grade may be experimentally produced by the simple injection of lamp-black into the sub-arachnoid channels, which serves to occlude the arachnoid villi, would seem to make it most probable that damage or imperfect development of these structures is the most common cause of otherwise unexplained cases of early or congenital hydrocephalus. From these and other studies it is pretty definitely proved that the fluid circulates from its origin in the choroid plexuses through the ventricles into the cisterna magna and having reached this pond that its further course is forward along the basal cisterns and upward over the cerebral cortex to its points of absorption—these myriad microscopic villi which empty it into the dural sinuses. Owing to their relatively low pressures the venous blood and cerebro-spinal fluid are driven out of the cranial chamber by each arterial pulse so that some of the fluid passes into the spinal sub-arachnoid space which is very easily distensible. In man we meet the curious arrangement of a long vertical tube of fluid, from which the only, or at any rate the main outflow is at the upper end. The interchange and replacement of this fluid is aided by the presence of a plexus of veins in the space between the dura mater and the laminal arches of the lower dorsal and lumbar regions. These veins, when they become engorged during expiration, displace the fluid in the lumbar cul-de-sac upwards towards the cervical region of the cord. In spite of these pulsations, however, there is a tendency for blood corpuscles and inflammatory cells to become sedimented in the lower end of the dural sac, whence they may be withdrawn by lumbar puncture. With this sketchy outline of the pathways of the cerebro-spinal fluid in our minds we may proceed to ask in what ways the examination of this fluid may assist us in our clinical problems.

Just as we know the normal cellular and chemical content of blood and urine, so in the last few years we have come into possession of a similar knowledge as to the cerebro-spinal fluid. By lumbar, cistern and occasionally even ventricular puncture, much information of value for diagnosis and for treatment may be obtained, so that what was for our forefathers a matter of mere sagacious inference has become for us an object of scientific demonstration. Obviously few of us can

carry in mind the enormous mass of detail which the busy labors of many workers have amassed for us; but as a rough aid to memory one may group pathological processes in the central nervous system into the following categories—vascular, inflammatory, toxic, neoplastic and degenerative. Most organic disturbances of the nervous system can be placed under the rubric of one or another of these and in all of them the investigation of the cerebro-spinal fluid may be of no little value.

First as to vascular disorders. Cerebral hemorrhage or thrombosis often occurs without producing any other change in the fluid than a rise in pressure. It is usually found however that the fluid shows some alterations from the normal which are associated more with the morbid changes in the blood vessels than with the occurrence of the stroke. The commonest of these is an excess of protein, which is frequently found in case of cerebral vascular disease associated with high blood pressure. When this is due to syphilis the excess of protein may be, but what is of some importance, is not always accompanied by an increased cell count and a positive W. R. In some cases of cerebral hemorrhage blood penetrates into the ventricles in larger or smaller amounts; the fluid then becomes evenly mixed with blood cells and when these are removed by spinning, the clear overlying fluid is tinged with yellow. The presence of large quantities of evenly mixed blood in the fluid soon after a hemiplegic stroke is strong evidence in favor of cerebral hemorrhage. But a small quantity of blood admixture associated with yellow discoloration does not prove that we are in the presence of cerebral hemorrhage. For it must be remembered that every case of cerebral thrombosis is associated with some hemorrhage from capillaries, and when this occurs in the neighborhood of the large cistern at the base of the brain some of the red cells can easily find access to the spinal sub-arachnoid space. Thus after thrombosis of the middle cerebral artery in the region of the Sylvian fissure it is common to find slight blood contamination and yellow coloration of the clear fluid. In extradural and subdural hemorrhage which is almost always traumatic in origin there is as a rule little or no alteration in the fluid—at most it may show a slight yellowish tint.

In subarachnoid hemorrhage however the evidence afforded by the cerebro-spinal fluid may be crucial. Such hemorrhage may be due to trauma as in fracture of the skull, but it may be spontaneous and occur in young, healthy subjects as the result of a relatively slight strain or effort, or again in the course of a febrile disease. In such cases the fluid examination may be the readiest and most certain, indeed at times the only way of distinguishing the condition from acute meningitis or encephalitis. When one considers how intolerant is the subarachnoid space toward red blood cells, and furthermore how Nature by placing therein the wandering meningocytes, has provided from birth a sort of police patrol for their removal, it must be evident to all of us that hemorrhagic effusions in the new-born ought to be treated by lumbar puncture in spite of the technical difficulties attendant upon entering such a diminutive lumbar sack.

In all types of meningitis lumbar puncture is so much a matter of routine that I need only mention it. There are however one or two points of differential diagnostic value which it may be worth while to recall. We all know how difficult is the distinction, especially in their early stages, between tuberculous meningitis and some cases of encephalitis lethargica. Here the fluid may be of considerable help for whereas in both conditions there is usually some increase in small lymphocytes, if we study the protein, glucose and chlorides, it will usually appear that in tuberculous meningitis glucose and chlorides are constantly reduced below the normal and protein is increased, while in encephalitis lethargica protein and chlorides are within normal limits while the glucose is usually rather above the normal. If tubercle bacilli are found in the fluid, the diagnosis is, of course, settled, but one is not always so fortunate as this and in these puzzling cases it is that the estimation of protein, chlorides and glucose is of so much value.

In meningococcal meningitis it is a mistake to expect cloudy fluid at the beginning of the disease when the administration of serum may do the most good. The early fluid may present none of the characteristic appearances of meningitis and a most careful examination of it may be necessary to establish the diagnosis of meningitis. At this stage the fluid may be clear and colorless or may present merely a slight olive tint. A heavily pur-

ulent fluid is the exception at this stage of the disease, but within a few hours of the first intrathecal injection the fluid becomes distinctly more purulent. The cells are enormously increased, 1000 to 2000 or more per centimeter. Almost all of them are of the polymorphonuclear type in the early stages while lymphocytes and eosinophil leucocytes are very scanty. It is well to remember that a clear cerebro-spinal fluid may contain a large number of polymorphonuclear cells and hence it is not true, as one sometimes reads in text-books, that a turbid fluid is the most suggestive evidence of meningococcal meningitis. If there is a reasonable suspicion that meningococcal meningitis is present, serum ought to be given even when the fluid is perfectly clear. As in tuberculous meningitis, protein is increased, while chlorides and glucose are diminished, but even when the diplococcus cannot be found the leucocyte increase being polymorphonuclear rather than small mononuclear as in tuberculous meningitis, is of considerable value in contributing to the correct diagnosis. One word as to those sub-acute and chronic cases which for years have been called "posterior basic meningitis." In these conditions the diplococcus is hard to find and it may be necessary to await the results of culture on blood media before the organism can be demonstrated. Streptococcal meningitis, arising for example from infection of the middle ear or mastoid cells, or again from some of the paranasal sinuses may give a fluid substantially identical with that of meningococcal meningitis, with one exception—in the meningococcal type the organism is usually to be found in some at least of the cells and is Gram-negative, while in streptococcal meningitis it is Gram-positive and can be seen lying between rather than within the cells.

I think it may be said with truth that every patient who begins to complain of spastic weakness in one or both legs should be regarded as the subject of spinal tumor until such possibility has been definitely disproved. And while spinal tumors are less frequent than those of the brain, there are certainly some neoplasms which for months and even years remain unrecognized because first, an erroneous idea of their symptomatology is widely prevalent, and secondly, modern technical methods are not used as often as they might be in the diagnosis of them. Medical tradition has long taught us that spinal tumors disclose

their existence by a sequence of symptoms beginning with neuralgic root pains which are then followed by motor weakness and concomitant sensory disturbances. Now while this is generally true it is by no means universally so, for many tumors for a long time, and indeed at no time produce any root pain symptoms. They may run a long course and cause complete paraplegia without any very obvious pain, for the reason that their anatomical site may be such as to produce no root pressure. Hence it is that many of them are unrecognized as such until irreparable damage has been done to the cord.

Even though we know from history and laboratory tests that the patient has been infected with syphilis, even though we may discover an osteoarthritic spine, even though we are aware that multiple sclerosis may remain for long confined to the lumbar cord, even though the patient may have flat feet, or sacro-iliac pathology, even though we soothe our minds with the hypothesis of some kind of transverse myelitis, nevertheless we should always remember that a spinal tumor may be the real cause of the patient's difficulties. And if it is present it is highly probable that careful study of the cellular, chemical and pressure relations of the fluid will help us to some provisional conclusions.

If tumor is present it is reasonable to assume that mechanically it will cause some grade of sub-arachnoid block which, by constricting the spinal sub-arachnoid pathway, will interfere with normal flow of fluid. Now there are three ways of determining the existence of this block. In 1909 Blanchetiere and Lejonne and in 1910 Nonne showed that in cases of spinal tumor there is increase of protein without any corresponding increase of cells in the spinal fluid. In 1919 Dr. Ayer of Boston introduced the method of tapping both the cisterna magna and the lumbar sac, and comparing the manometric pressure and the chemical composition of the fluid in the two situations. This method formed a really brilliant advance on the examination of the lumbar fluid alone, as by its use it is possible to state with some certainty whether or not there is blocking of the sub-arachnoid space, and to exclude such causes of increased protein in the lumbar fluid as polyneuritis and tumors of the cauda equina. In 1923 Sicard of Paris advanced the subject a stage further by injecting lipiodol into the cisterna magna, and deter-

mining by the X-ray not only the presence and completeness of the block, but also its situation in relation to the vertebrae. In a case of paraplegia, then, of doubtful origin the clinician will have recourse first to the examination of the lumbar fluid alone and if this suggests the diagnosis of a spinal compression, he may then employ or have employed for him, the methods of Ayer and Sicard. If however the fluid is perfectly normal, or shows evidence only of inflammatory disease of the meninges, the diagnosis of spinal compression may be discarded, for the moment at least.

From these altogether too sketchy remarks which touch merely the fringe of a great subject, I think one may apprehend that to the blood and urine we may now add the cerebro-spinal fluid, which, because it bathes the brain and cord and their coverings, is able to report to us the site, kind and degree of pathological happenings in these structures.

I have been urging the employment of lumbar puncture. May I say one last word by way of caution in its use. No more than ureteral catheterization should it be used as a matter of routine. When one has seen, as some of us have, a patient collapse after what appeared to be a simple puncture, he is not likely to advise the procedure without the justification of reasonable need. When there is an increased intracranial pressure puncture should be done with the greatest care, especially in the presence of suspected tumor; and if the tumor is thought to occupy the posterior fossa of the skull no diagnostic curiosity should lead a physician to tap the lumbar sack nor even to think of cistern puncture. Lastly, when confronted by a condition of septicaemia tapping is inadvisable for the result of our efforts may be the setting up of a meningitis which otherwise might not have occurred.

*THE TREATMENT OF NEUROSYPHILIS

Personal Observations and Opinions

WILLIAM NEWTON HUGHES, A.M., M.D.

This paper, without any claim for originality, presents briefly facts of value in the treatment of neurosyphilis.

*From the neurological department of the Rhode Island Hospital.

Read before the Rhode Island Society for Neurology and Psychiatry at Butler Hospital, Dec. 14, 1925.

Many cases of neurosyphilis will be prevented by observing the following rules.

1. Primary syphilis should be intensively treated without a single week's intermission during the first year.

2. Never should reliance be placed entirely upon arsphenamine or one of its products. Bismuth, mercury, or both intramuscularly, and possibly potassium iodide by mouth should be given.

3. An examination of the spinal fluid should always be done after the first course of arsphenamine, even with a negative blood Wassermann test, as it may indicate the need of a longer course to prevent a relapse during bismuth or mercury treatment.

4. The parents of congenital syphilitic patients, the wives, husbands, and children of all syphilitic patients should have a complete history and physical examination done to detect signs of syphilis, and to indicate the value of a blood Wassermann test, of a spinal fluid examination, and of specific treatment. The above relatives, especially those of neurosyphilitic parents, should have blood and spinal fluid examinations in spite of negative histories and physical examinations, unless specific treatment or lumbar puncture is contraindicated.

When the diagnosis of neurosyphilis has been proved or seems probable, a complete history with a complete physical and mental examination should be recorded. Any previous luetic treatment and reaction to it should be noted, as well as any information in regard to previous blood, spinal fluid, urine, eye, and blood pressure examinations.

In beginning treatment, it is generally advisable to give mercury in some form for two or three weeks before intravenous injections. It is my practice to give it by mouth combined with potassium iodide as follows:—

R.—

Pot. iod.	drams v
Hydrarg. iod. rub.	gr. ii
Syr. Sarsaparil. co ad	oz. iv
misce	

Sig:—One teaspoonful three times a day preferably before meals in milk or water.

The iodides seem much better tolerated before meals. In psychotic and other socially maladapted patients intravenous sulpharsphenamine is often given before a mercury course.

In patients above fifty years of age, the mildest treatment which will free them of symptoms is desired. If a daily routine of suitable individual hygiene and tonic medication is arranged, syphilitic treatment may not be necessary. Generally the iodide-mercury mixture by mouth, followed by short courses of bismuth intramuscularly, is sufficient. In difficult cases, mercury by inunctions or intramuscularly, sulpharsphenamine intramuscularly or subcutaneously, sulpharsphenamine or tryparsamide intravenously, and even intraspinal treatment may be selected. Short courses and the least intensive treatment which will produce satisfactory results are given.

Ordinarily, following mercury, sulpharsphenamine intravenously, intramuscularly, or subcutaneously is given in .3 to .6 gram doses once or twice a week, the number of injections depending upon the patient's reaction. Hoping to avoid making a socially adapted neurosyphilitic patient sick because of treatment, I give small doses and short courses of sulpharsphenamine to all except the psychotic and other socially maladapted patients. These receive much more intensive treatment, often from twenty to thirty injections without a week's intermission.

Sulpharsphenamine I believe to be the best arsphenamine product for neurosyphilitic patients, since it is less dangerous than tryparsamide, more effective in the average case, and next to tryparsamide in power of penetrating nervous tissues. It may be given intravenously in the same manner as neoarsphenamine. It, however, does not give a sore arm if part of it is injected into the superficial tissues near the vein, and it may be stirred into solution more vigorously and allowed to stand for a longer time without toxic deterioration. It may also be given subcutaneously or intramuscularly with essentially no pain, provided it is dissolved in one cubic centimeter or less of distilled water. I inject it in the gluteal muscles and in the tensor fasciae latae just below the femoral trochanter. If it is used subcutaneously, it may be injected between the scapulae with the least difficulty.

Following the sulpharsphenamine course, potassium bismuth tartrate is given once or twice weekly deep into the gluteal muscles; .1 gram for five doses; then .15 to .2 gram until a total of 2.5 to 3 grams has been reached. I agree with most

of the recent literature in considering bismuth of more value in neurosyphilis than mercury. After injections of bismuth or sulpharsphenamine, vigorous local massage for thirty or forty seconds seems to prevent the formation of indurated areas. Essentially no local pain occurs, if small doses precede the larger ones, but, if large doses are given at first, there may be much local pain and even generalized pains, suggesting a neurorecidive. Slight generalized weakness has been the only symptom noted as the limit of tolerance has been approached. A sense of well being occurs in most patients receiving bismuth, and this never seems to occur if mercury is used in place of bismuth.

Courses of mercury may be substituted for bismuth or alternated with it. I use inunctions if the patient will co-operate. One-half a mercurette (Park Davis & Co.) is rubbed on a different area of the body every day of the week except one for twenty to thirty minutes, and then the surplus ointment is removed with benzine. I rarely use malodorous intramuscular mercury injections, as they do not seem as effective as bismuth and are more painful. Still, in an occasional case, they are of value.

Mercury or bismuth is not given in conjunction with intravenous treatment because of the increased frequency of arsphenamine reactions.

Because of its possible dangers, I have used tryparsamide only in psychotic or socially maladapted cases who did not improve under other syphilitic medication. It is given intravenously in twenty to thirty cubic centimeters of distilled water. If no reaction occurs, it may be continued once a week for many months, the initial dose of one gram being increased to two grams at the second injection and then to two and one-half to three grams at subsequent injections. Generally after a varying number of injections of tryparsamide, courses of bismuth, mercury, or sulpharsphenamine are given. Without doubt the majority of patients treated with tryparsamide improve mentally and physically, the mental improvement being the more marked.

Because of its inconveniences and dangers, I use some form of intraspinal, intracistern, or intraventricular treatment, only when other resources have failed. I consider this the most efficient treatment in obstinate cases of neurosyphilis.

Throughout all the different courses of syphilitic treatment, potassium iodide may be given, five to seventy-five drops of the saturated solution three times a day before meals in milk or water. It is omitted for two weeks in every month.

Reactions to potassium iodide, mercury, bismuth, sulpharsphenamine, and tryparsamide should be noted before each treatment, and pertinent symptoms and physical signs checked every one to three weeks. In all cases of neurosyphilis, the patient with the disease and not the disease alone must be treated. Individual treatment is the key to success.

I shall discuss reactions to arsphenamine products in the order of frequency in which I have found them.

1. Slight itching at the elbows, which generally begins in the arm used for injections and sometimes spreads to the other arm or even becomes generalized, indicates that the limit of arsphenamine tolerance has been closely approached. Patients with it receive an arsphenamine product cautiously after three or four weeks' intermission.

2. Nausea and vomiting, occurring for the first time after several injections, may indicate arsphenamine saturation so that it is well to proceed carefully or to omit arsphenamine for one or two weeks.

3. Diarrhea generally indicates more arsphenamine saturation than nausea and vomiting but arsphenamine can be used with care after one or two weeks.

4. Formication in the feet occurs especially with neoarsphenamine. The drug may be continued after two or three weeks' intermission.

5. A generalized rash which often follows local or generalized itching indicates that the danger point of arsenic tolerance has been approached. An arsphenamine product should not be used for three or four years.

6. Herpes simplex or herpes zoster may indicate too little or too much arsphenamine: in the former case being a neurolapse; in the latter an arsphenamine poisoning. If the herpes clears up rapidly, I wait for two or three weeks and then give arsphenamine again cautiously. If the herpes seems to progress, I tend to continue arsphenamine in small doses without an intermission.

7. Marked dermatitis with keratoses of palms and soles has the same meaning as a less marked generalized rash and should be treated in the same way as far as arsphenamine is concerned. It most often occurs when arsphenamine and mercury have been given in conjunction or in close succession. In one patient, it occurred when mercury inunctions were given several weeks after the cessation of intramuscular sulpharsphenamine. The fact that sulpharsphenamine is retained in the tissues longer than other arsphenamine products probably explains this case.

8. Hemorrhages from the mucous membrane of the mouth or nose are of grave import. With this condition it is probably advisable never to use arsphenamine again because of the danger of cerebral hemorrhage.

As soon as any of the arsphenamine reactions are well under control, bismuth may be used. Tryparsamide has been given without ill effect two or three months after a generalized rash or marked dermatitis. The only symptoms which I have noted after tryparsamide have been flashes of light in front of the eyes. These quickly disappeared so that further treatment could be resumed.

SUMMARY

Primary syphilis should be intensively treated without a single week's intermission during the first year.

Never should reliance be placed entirely upon arsphenamine or one of its products.

An examination of the spinal fluid should always be done after the first course of arsphenamine even with a negative blood Wassermann test.

Individual treatment is the key to success. Sulpharsphenamine and bismuth are recommended in the treatment of neurosyphilis.

With a generalized rash or marked dermatitis an arsphenamine product should not be used for three or four years.

With hemorrhage from mucous membranes, an arsphenamine product should probably never be used again.

Tryparsphenamide may be used without ill effect two or three months after an arsphenamine dermatitis.

REDUCTION OF MEDICAL TAXES

Representatives of Association Appear Before Ways and Means Committee

At a hearing before the Committee on Ways and Means of the House of Representatives held at Washington, October 21, a presentation of reasons was made for the reduction of the existing war tax on physicians under the Harrison Narcotic Law. The American Medical Association was represented at the hearing by Dr. Charles W. Richardson, Washington, D. C., member of the Board of Trustees, and by Dr. William C. Woodward, Chicago, executive secretary, Bureau of Legal Medicine and Legislation.

Dr. Richardson pointed out to the committee that prior to the war the federal tax or fee paid by physicians for a license under the Harrison Narcotic Law was one dollar. He said that the medical profession of the country gladly accepted the increased war tax of three dollars and that the profession did everything in its power to make the law effective. He said that, as many of the war taxes are being removed, this increased tax against physicians should now, in justice, be restored to the rate existing prior to the war.

Dr. Woodward stated that it is clearly a question of whether Congress will or will not reduce a war tax; that the present rate of three dollars was effected by the Revenue Act of 1918 along with other increases; that these other increases have, to a large extent, been removed or reduced.

"For a number of years," said Dr. Woodward, "the tax derived from physicians under the narcotic act was nearly a half million dollars greater than the expenses of enforcing the act. Obviously, that was as it should be if one were dealing with a measure intending to raise revenue. Recently, however, the plea was made that inasmuch as approximately half a million dollars a year was being collected under the law, therefore the appropriation should be increased so as to permit the use of the entire amount for enforcing the law. That argument was accepted and an increased appropriation of half a million dollars was made. So it is not fair to take the cost of enforcing the law and fix the tax on that basis."

(Continued on page 134)

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EDITORIALS

INTOLERANCE

It might reasonably have been expected that the continued increase in opportunities for liberal education would have resulted in the dissemination of that spirit of tolerance so necessary to progress, but it is unfortunately true that the reverse is the case. A veritable wave of intolerance seems to be sweeping the country. Restrictive legislation of a

century ago is being revived, and the lawmakers of the present are striving to outdo their ancestors in meddling in the personal affairs of their constituents. The most notable and pernicious example of this interference with freedom is the increasingly successful attempt to prevent the teaching of the theory of evolution in the schools of many of our states. This movement is a deliberate effort to limit the spread of knowledge concerning subjects which prove themselves displeasing to a certain bigoted and vociferous portion of the community. Its chief danger lies in the fact that it may prove

the entering wedge in a control of education which would lead to stifling all independent thought and scientific research. Inasmuch as our practice is dependent for its progress on the advance of such thought and research, we must unite with all other educated men in strenuously opposing, at every opportunity, any attempt to limit the absolute freedom of education.

language, and to enlist his aid by making the administration of the remedy financially profitable to him. It is indeed fortunate that the good sense and moral integrity of the medical profession foredoom this attempt to the failure which it merits.

1. Koch's "Cancer Antitoxin"—*Jour. Am. Med. Assoc.*, lxxxvi, 19, 1469-1472.

2. Bulletin of the Koch Cancer Foundation, i, 1, 2, and 3.

EXPLOITING THE CANCER SUFFERER

The steadily increasing number of institutions and organizations formed for the study and attempted control of cancer, as well as the less spectacular but equally praiseworthy work of thousands of independent investigators in all parts of the world, bears eloquent testimony to the interest displayed in the problem of malignant disease by the medical profession. That this interest is by no means confined to medical men is evidenced by the generous moral and financial support accorded to these investigations by the general public. It is, indeed, doubtful if any other medical problem has ever attracted a like amount of attention.

There is, however, a certain class of men who are anxious and willing to utilize the suffering of others as a means of exploitation, and to these gentry the cancer field has afforded an opportunity with golden possibilities. "Cures" almost without number have arisen, have held out vast encouragement and glowing promise, have taken large sums of money from patients who could ill afford such expense, and have left behind disillusionment and a new realization that for advanced cancer, there is, at present, no known remedy.

The Koch Cancer Foundation is the imposing name assumed by a group of men interested in promoting the sale of the latest of these supposed "cures" for this dread disease. The merits of this Synthetic Antitoxin for the Cure of Cancer have been carefully investigated on at least two occasions and there is not the slightest evidence that this secret remedy possesses any curative properties. The remedy is being advertised with an ingenuity which might well find a better outlet, the attempt being made to delude the general practitioner by a clever mixture of half truths and falsehoods clothed in pseudo-scientific

MEDICAL EDUCATION

A constantly recurring question that is vexing the minds of most of the practitioners of medicine is the attitude of the layman to medical practice. In all walks of life there is a noticeable lack of faith in the medical profession in the minor ailments, as evidenced by the increasing work of the osteopaths, chiropractors and the like.

An answer to this question, and a very reasonable one, is made by the Chairman of the Section of Pharmacology and Therapeutics at the last annual session of the American Medical Association. Dr. Thomas Ordway, who is also Dean of the Albany Medical College, states that there are "two serious defects in our medical education and medical practice which have been potent factors in the development of the so-called cults—the neglect of the proper instruction and use of physical therapy and the consideration and general application of psychiatry."

One other factor has been the unsympathetic treatment accorded to the chronic invalid. This unfortunate individual wanders from one office to another, either to be told that there is nothing the matter or that this new prescription will bring about relief. It may be true that physically the individual is sound, but the dislocation of a person's relation to his family or the community is of greater moment and more lasting significance than the dislocation of an actual joint.

There is distinct hope for the future, for the American Medical Association has formed a council on physical therapy which will undoubtedly suggest the proper treating of this subject in our medical schools. Also the interest that has been taken by many practitioners in the subject of mental hygiene has evolutionized the teaching of this

subject so that now the general principles are being taught in terms intelligible to the average mind. Furthermore the chronic invalid is being given more consideration, special hospitals being established to study the problems of chronic illness. With these new acquisitions, the physician of the future should be able to compete more successfully with the cults and incidentally give better service to their patients.

AS TO IODINE

The treatment of goitre with iodine compounds is one of the oldest, well established forms of therapeutics that is known. The ancient Greeks, without knowledge of the beneficial agent, used the ashes of sea weed which contained a large amount of iodine. Since its first use in the form of ashes, iodine has passed through alternating cycles of praise and condemnation in the treatment of goitre. About two years ago, iodine came into favor again after a careful study of its effects on thyroid disease by competent workers. Recently, however, repeated warnings have appeared about the harmful effects of the drug when used improperly and the question of its disuse is again raised.

In the past, little was known about the thyroid gland. Until comparatively recently, iodine was not known to be in the gland in considerable quantity. Varying results were not attributed to different pathological conditions in the gland. Physicians have had a good excuse for not using a drug in a purely empirical manner. At the present time, however, such knowledge is available and thyroid diseases are classified. Certain conditions of the gland are improved to a moderate extent; others do not improve; and some are likely to be made worse with the use of iodine. It would seem better if the physician acquainted himself with such information rather than to condemn a drug which has a definite but limited place in the treatment of thyroid diseases.

SOCIETIES

PROVIDENCE MEDICAL ASSOCIATION

The regular monthly meeting of the Providence Medical Association was called to order by President Roland T. Hammond, Monday evening, April 5, 1926, at 8:50 P. M. In the absence of the secretary, Dr. Peter P. Chase, Dr. Hammond called

for nominations for a secretary pro tem. Dr. Wilfred Pickles was nominated and elected to this position. The records of the previous meeting were read and approved. The Standing Committee having approved the application for membership of Dr. Edward T. Strecker, the Association voted to instruct the secretary to cast one ballot for the election of the applicant, and this was done. There was no unfinished or new business. Dr. Hammond reported to the Association the death of one of its oldest members, Dr. George L. Collins, and appointed the following members as a committee to draw up resolutions: Dr. John W. Keefe, Dr. Halsey DeWolf and Dr. Elihu S. Wing.

Dr. Ray W. Benton read the first paper of the evening on "An Unusual Case of Tuberculous Meningitis." He pointed out that this condition ordinarily presents a definite clinical picture, and diagnosis in a hospital is usually not difficult. In the case presented, an eight year old child was struck on the head with a stone two weeks prior to admission to the City Hospital, and during this period the child had three convulsions. The Von Pirquet and intradermal tuberculin tests were negative, in spite of the fact that clinically the case began to resemble tuberculous meningitis; and tubercle bacilli could not be demonstrated in the spinal fluid until twelve days after admission. Autopsy findings and guinea pig inoculation confirmed this diagnosis.

Dr. Eric Stone then presented "Comments on Epididymitis," based on a study of 160 cases of this condition, and arrived at the following conclusions: (1) expectant treatment alone is not efficient; (2) epididymotomy gives immediate relief of pain and shortens the time of hospitalization; (3) mercurochrome stands next to epididymotomy in relief of pain but does not shorten the time in the hospital; (4) sodium chloride is of no benefit; (5) in a few cases aolan seems to shorten the course of the disease; (6) in selected diathermy aids in avoiding incapacitation. The paper was discussed by Drs. Oddo, MacAlpine and Stone.

"The Treatment of Scoliosis" was the subject of the final paper, presented by Dr. Henry McCusker. Dr. McCusker outlined the various modes of treatment which have been used for the correction of the structural type of this deformity. He showed that Drs. Lavett and Brewster, after consultation with engineers, had decided that a spine

with scoliosis should be regarded as an arch; and that the effort should be, therefore, to separate the ends of the arch rather than to bring pressure on the keystone which is the strongest part. They devised a plaster jacket which would accomplish this object, but this made a very bulky apparatus, and Dr. McClusker achieves the same result by means of a fairly light leather jacket. The paper was illustrated by many typical X-rays and by a patient wearing one of the corrective jackets. The paper was discussed by Drs. Danforth, Horan and McCusker.

The meeting adjourned at 10:25 P. M.

Attendance 57.

Collation was served.

Respectfully submitted

WILFRED PICKLES

Secretary Pro-Tem.

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. Roland P. Hammond, Monday evening, May 3, 1926 at 9:00 P. M.

The records of the last meeting were read and approved.

Dr. William P. Buffum moved that the secretary of the Milk Commission of the Providence Medical Association be empowered to sign contracts with the producers of certified milk in the name of the Providence Medical Association.

It was voted to refer this to the Standing Committee.

Dr. Montafix Houghton presented a specimen of an ascending Intussusception of the Ileum. This started about two and one half inches (2½) from the ileocecal valve but went up the ileum from here. He removed about 18 inches of gut.

Dr. Jerome J. McCaffrey presented a case of Spinal Cord Tumor. This was a young girl who last fall began to have a muscular weakness of one arm extending to leg and then up other side of body. There was incontinence of urine and constipation. Sensory disturbances localized a tumor in the fifth, sixth and seventh cervical vertebrae and X-Ray showed a lateral destruction of bone here. Dr. Kingman removed a neuro-blastoma at operation. He discussed the types of tumors and signs.

Dr. Charles A. McDonald spoke of difficulty of distinguishing cervical cord tumors from those of lower cord. A thorough neurological examination is usually sufficient. Dr. Robert C. Robinson discussed the scoliosis the child previously had, apparently not related to the tumor.

Dr. James A. McCann read a paper on "A Study of Obscure Kidney Pain in Women." These were cases from one to three months service. He emphasized the necessity of careful, thorough work. In cases not pointing particularly to kidney

trouble a series of beautiful X-Ray studies showed hydronephrosis.

Dr. Kerney and Dr. White discussed the paper.

The third paper was by Dr. Ira H. Noyes and Dr. Anthony Corvese on the "Significance of Blood Sedimentation Time in Gynecology and Obstetrics." The test consists in timing the sedimentation of corpuscles in citrated blood. In a healthy adult it varies from two to four hours. In uterine pregnancy the time diminishes as the pregnancy advances. It is decreased in inflammatorous. Over sixty minutes is against the presence of pus and under thirty-five points to active pus formation. The sedimentation test alone is not reliable to determine the time for operating in inflammatory conditions. It is of sufficient value to warrant its use in Gynecology in cases where a leucocyte count might be desired.

The paper was discussed by Drs. Corvese and Brackett.

The meeting adjourned at 10:45 P. M.

Attendance 75.

Collation was served.*

Respectfully submitted

PETER PINEO CHASE

Secretary

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. Roland Hammond, Monday evening, June 7, 1926 at 8:45 o'clock.

The records of the last meeting were read and approved.

The Standing Committee having approved their applications the following were elected members of the Association: Philip Batchelder, Perry Bernstein, Domenico Calise, Edward F. Dougherty, Jr., Paul J. Ewerhardt, Americo J. Pederella, Joseph Smith, Valentine Ujhely, John N. Walsh, Herman A. Winkler.

The secretary reported that the Standing Committee had empowered the Medical Milk Commission to sign contracts with the producers of certified milk.

Dr. John W. Keefe read an obituary notice of Dr. George L. Collins. It was voted that this be spread on records, a copy sent to the sisters of Dr. Collins, and a copy printed in the Rhode Island Medical Journal.

Dr. Brown asked that members give their papers to the secretary for printing in Medical Journal.

Dr. Edward G. Melvin reported a case of Phlegmon of the Upper Lip in a girl of 20. She had a furuncle of back of neck and pustules first at base of left side of nose and then of right with great swelling of upper lip and face. She refused operation at first but on fourth day with temperature of 106 she was thoroughly opened, then had X-Ray treatment. After a long course with pus in arm and a cough she completely recovered. Staph.

Aureus was organism. Dr. John B. Ferguson discussed the case.

Dr. I. Gerber spoke of ten cases he had seen treated by X-Ray. Dr. Mowry and Dr. Melvin also discussed it.

Dr. George W. Waterman read a paper on "Functional Uterine Hemorrhage." This occurs during the reproductive period, is marked by no characteristic physical findings and its etiology is considered by different men concerned with the endometrium, uterine walls, ovaries or endocrine and sympathetic systems. He believes that it is due to ovarian endocrine disturbances lighted up by various factors. Treatment is directed to general physical condition, organotherapy, D. & C., and finally radium treatment is very brilliant.

Discussion by Dr. Edward S. Brackett. He emphasized that these cases are not primarily pelvic.

The paper was also discussed by Drs. J. A. McCann, I. H. Noyes, C. A. McDonald, A. Corvese and Dr. Waterman.

Dr. Harvey B. Sanborn read a paper on "Vomiting and Pain in Neurological Conditions." Pain may originate from disease in the viscus, disease in the nervous system or be psychic. Vomiting may be caused by trouble in the viscus, toxic state of the nervous system or psychic trouble. He cited three common conditions causing mistakes and reported cases of gastric crises, epidemic encephalitis and hysteria.

Paper was discussed by Drs. C. O. Cooke, and C. A. McDonald.

The meeting adjourned at 11 P. M.

Attendance 83.

Collation was served.

Respectfully submitted

PETER PINEO CHASE
Secretary

PAWTUCKET MEDICAL ASSOCIATION

Regular meeting of Pawtucket Medical Association held at the "Jack-o-Lantern," 33 Summer St., Pawtucket, on June 15, 1926, at 8:45 P. M.

Speaker of the evening was Frederick V. Hussey, M.D., of Providence.

Subject: "Surgical Conditions in Children."

After a general discussion, the meeting was adjourned and a collation was served.

LESTER J. GILROY, M.D.
Secretary

WOONSOCKET MEDICAL SOCIETY

The officers of the Woonsocket District Medical Society of the ensuing year as elected at our last meeting are as follows:

President, Edward L. Myers.

First Vice-President, A. Constantineau.

Second Vice-President, Thomas J. McLaughlin.

Secretary, William A. King.

Treasurer, L. V. Conlon.

Counsellor, James H. McCooley.

Delegate, N. S. Garrison.

Censors, C. B. Barry, A. H. Monty, Thomas S. Flynn.

WILLIAM A. KING, M.D.
Secretary

REDUCTION OF MEDICAL TAXES

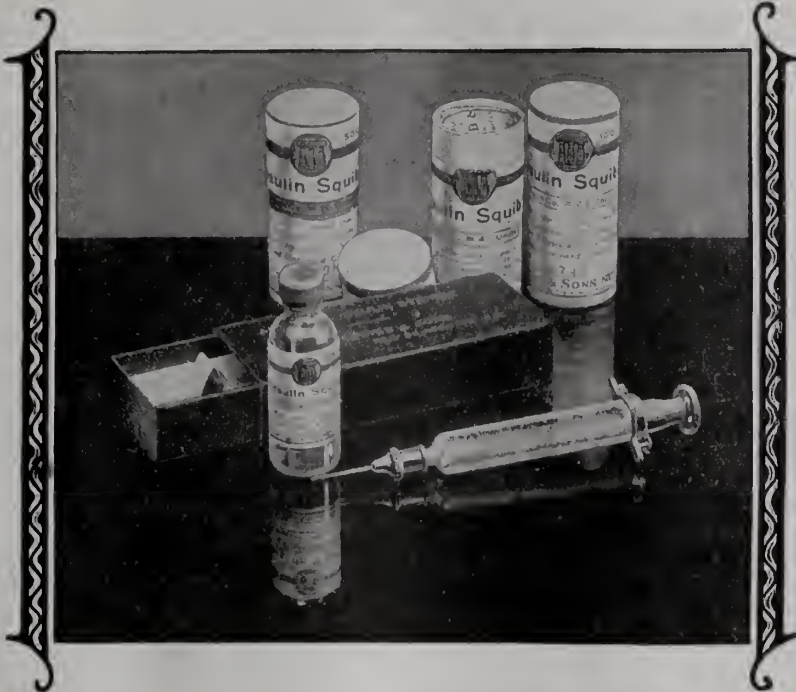
(Continued from page 129)

Representative W. R. Green, chairman of the committee, made the significant remark, "I suppose you are inclined to think that in any event the burden of enforcing the law ought to be on the whole public and not on the medical profession." The remark of Chairman Green may be regarded as the crux of this proposed tax reduction. The enforcement of the law is clearly an expense which should be borne by the public generally and not by the medical profession alone. Under no conditions can it be claimed that the enforcement of a general federal statute should be paid for exclusively by any class or any profession.

Drs. Richardson and Woodward also presented two proposed amendments to the existing federal income tax law: first, authority to deduct expenses incurred in attending meetings of scientific and professional organizations; and second, expenses of postgraduate study.

Dr. Richardson stated that, in the revenue acts of 1921 and 1924, exemptions are permitted to all trades, industries and mercantile organizations that send their representatives to various parts of the country. Dr. Woodward argued that the medical profession should be entitled to the same privilege, which has been denied to physicians under rulings of the Commissioner of Internal Revenue. The extent to which physicians are members of medical organizations and attend their meetings was shown by Dr. Woodward. He stated that inquiries were addressed to ninety-eight medical organizations, and seventy-seven of these reported their membership. The total membership of these seventy-seven medical organizations was 177,219. He stated that the estimated cost of attendance was \$17,718,000. On a 4 per cent basis the tax amounted to \$68,726, which is a very conservative estimate of the federal taxes paid by the medical profession under this particular section of the law because of the adverse rulings of the Commissioner of Internal Revenue.

The Committee on Ways and Means will continue to hold hearings for a considerable time, and will then go into executive session for the purpose of drafting the new federal tax bill to be considered at the December session of Congress.—*Jour. A. M. A.*, Oct. 31, 1925.



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THE RHODE ISLAND MEDICAL JOURNAL



OF MEDICINE

SEP 16 1926

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ORIGINAL ARTICLES

THE BENIGN CERVIX WITH SPECIAL REFERENCE TO TREATMENT BY CAUTERY*

I. H. NOYES, M.D., F.A.C.S.

AND

ANTHONY CORVESE, M.D.

PROVIDENCE, R. I.

Disease of the uterine cervix may occur at almost any period of life. Before puberty it is relatively uncommon however and malignancy is exceedingly rare.

After the sixth decade of life there is an abatement of cervical disease, both benign and malignant, due probably to regressive changes following the menopause. This leaves a period of approximately 45 years with which we are chiefly concerned when considering our present subject.

Inasmuch as the vast majority of benign cervical lesions originate from infection or trauma, the reason for their preponderance during the active sexual and reproductive years is obvious.

If, as has long been believed, there is any casual relationship between chronic irritation or infection and cancer, it is not surprising that the cervix is one of the most frequent sites of malignant disease for certain it is that on no other portion of the body would woman tolerate any such advanced and offensive diseased process as is here frequently observed without making some serious attempt to have it cured or removed. It is indeed unfortunate for the success of the crusade for the prevention and early recognition of cervical cancer that this simple anatomical structure occupies such an inconspicuous position in the female body.

The character of the lesions encountered varies according to their etiology, the nature and duration of the infection and the extent of the trauma.

The gross appearance frequently differs considerably in the nulliparous and the parous, a cir-

cumstance not remarkable as in one we are usually dealing with a single factor, infection, while in the other, though we may be concerned with trauma alone, more often both trauma and infection play a part.

In the non-parous the process most frequently observed is a chronic endocervicitis due to gonorrheal infection and characterized by an excessive mucopurulent discharge. In more advanced stages the presence of the irritating discharge causes erosion of the mucous membrane surrounding the external os and infection transforms some of the cervical glands into small yellowish white follicles which are visible immediately beneath the overlying epithelium.

It must not be concluded however that all cases of endocervicitis in the non-parous are due to gonorrheal infection as numerous instances are met with in young women whose virginity can be fairly well proven. In such the etiology is often obscure but occasionally their origin can be traced to a vaginitis, specific or otherwise, which occurred during childhood.

In parous women a wide variety of diseased conditions of the cervix exists. Perhaps the simplest of these is one frequently observed a few weeks or months postpartum where a minor laceration has resulted in slight eversion of the lips with exposure of the endocervical mucous membrane to the vaginal secretions and without apparent infection. Between this simple lesion and the enormously hypertrophied, eroded and infected cervix all grades are seen, a description of which would be time consuming and unnecessary.

To enumerate the various methods which have been employed in the treatment of these conditions would necessitate a review of a considerable portion of the history of gynecology from the time of complete reliance upon depletory measures and the application of caustics to the trachelorrhaphy devised by Emmet and later the operation of amputation down to the tracheloplasty of Sturmdorf, the application of small doses of radium and the use of the actual cautery.

*Read at the 115th Annual Meeting of the Rhode Island Medical Society, Providence, June 3, 1926.

That much can be accomplished toward improving the condition of a cervix showing minor erosions or slight infection by the application of antiseptics and the use of medicated tampons must be admitted by those who have had experience with such measures. If however laceration has so altered the anatomy that there is marked eversion of the endocervical mucosa or if infection has already gained access to and produced characteristic changes in the glands and surrounding tissues, the improvement will seldom be more than temporary.

Simple trachelorrhaphy, if performed early and in the absence of infection, is an exceedingly valuable prophylactic procedure. It may be done immediately after the occurrence of the laceration at delivery if surroundings and assistance are such as to insure a satisfactory aseptic technique or as an intermediate repair as has long been advised and practised by Dr. B. C. Hirst or as an early secondary operation. On the other hand if repair is delayed until chronic hyperplastic and glandular changes have taken place the procedure fails to give satisfactory results as only a portion of the diseased tissue is removed.

Realization of this fact served to increase the popularity of the amputation which soon became the method of choice. Indiscriminate use of this operation, often done at high level during the child-bearing period, was naturally followed by many bad results. Failure to obtain accurate approximation of flaps frequently caused a persistent leucorrhea, sterility seemed to be increased and many of those who became pregnant either miscarried or suffered dystocia at delivery. In a number of instances Cesarean section had to be performed on account of the inability of the cervix to dilate.

Appreciating the importance of cervical infection as a cause of pelvic pathology but realizing both the inadequacy of trachelorrhaphy and the disadvantages of amputation Sturmdorf devised a most ingenious plastic operation, discussed by him before this society three years ago, whereby the diseased endocervix is removed by excising a cone of tissue and the resulting cavity relined with a cuff of mucous membrane dissected free from the portio vaginalis, thus accomplishing the purpose

of the amputation without shortening or weakening the cervix to any great extent.

This procedure has revolutionized the operative treatment of cervicitis and Sturmdorf's articles have done much to recreate an interest in the pathology of the disease.

The use of small amounts of radium in the treatment of endocervicitis as suggested by Curtis is not likely to meet with general favor at present on account of its comparative scarcity, the lack of exact knowledge regarding proper dosage for women in the child bearing age and the danger connected with its use in the presence of pelvic inflammation.

Kennedy in 1921 described a method of treatment by which two or three cubic centimeters of 25% alcohol are injected into the interstitial tissues of either lip in a direction parallel to the cervical canal. He claimed for it excellent results in mild cases.

The value of the cautery in the treatment of benign cervical lesions though by no means unknown was brought anew to the notice of the profession by Hunner in 1906. Since then R. L. Dickenson has clearly stated what he believes are its indications but his technic differs considerably from that proposed by Hunner.

During the past few years gynecologists have shown a renewed interest in the method and a great number of articles on it have appeared in American and foreign journals. Those in charge of the program for the section in gynecology and obstetrics at the recent meeting of the American Medical Association considered the subject of cervical disease of sufficient importance to arrange for a symposium in which papers dealing with treatment by cautery were given due prominence.

Our own experience with the method has now extended over a period of about three years during which cases of various types have been treated. In going over our records we find that they seem to fall into three main groups.

1. The mild or moderately advanced cases of endocervicitis usually gonorrheal in origin presenting on examination a greater or less degree of mucopurulent cervical discharge with or without some eversion, superficial erosion or slight hypertrophy. These patients were for the most part nulliparous.

2. Parous women who have suffered laceration of the cervix with resultant eversion and hyperplasia of the exposed mucosa. Frequently there exists in addition some degree of infection, cystic degeneration or hypertrophy.

3. Those exhibiting advanced stages of chronic cervical infection with extensive erosion, cystic disease and hypertrophy.

In deciding upon the method of treatment one must be governed largely by the nature and extent of the lesion. As it is impossible to make a positive diagnosis of very early malignant disease of the cervix by either sight or touch, any lesion that looks at all suspicious of cancer should be treated by other means than the cautery. We can not emphasize this point too strongly.

In instances where the disease is of long standing and there is marked hypertrophy with deep seated infection or extensive cystic degeneration particularly if the patient is approaching or past the menopause amputation or the Sturmdorf operation should usually be chosen.

If the process is somewhat less advanced and the patient is in the child-bearing age a mild cauterization of the canal-lining combined with Hunner's technic of making several deep radial incisions under anesthesia will rid the cervix of disease and restore it almost to normal.

This method of procedure is an exceedingly valuable one as a preliminary to laparotomy for pelvic inflammatory disease especially when gonorrheal in origin as, if omitted, an infective focus still remains regardless of how radical the intra-abdominal work may be.

In cases demanding hysterectomy the preliminary cauterization may be as complete as desired for stenosis in such instances has no disadvantage. Even in the presence of advanced stages of benign cervical disease an extensive cauterization of this sort permits the surgeon to perform the less dangerous operation of supravaginal excision of the uterus in place of complete hysterectomy with very slight probability of cancer developing in the remaining stump.

Simple postpartum lesions, mild chronic gonorrheal infections and the superficial erosions occurring in the virgin can frequently be treated in the office without anesthesia but if cervical dilatation is necessary anesthesia is essential to success and

in the virgin is usually desirable for obvious reasons.

When done as an office procedure the Dickenson technique or some modification thereof is usually carried out. This consists of exposing the cervix, grasping one lip with a bullet forceps, cleansing and drying the diseased surfaces and making the desired number of stripes with a light cautery tip. The process is repeated at intervals of a few weeks until a satisfactory result is obtained.

A varying amount of discharge frequently blood tinged is usually the only annoying feature following the treatments and this is readily controlled by a daily douch. A moderate degree of hemorrhage has been reported as occurring occasionally when the slough separates in cases where the more extensive method has been employed but we have not met with such an instance.

In conclusion we wish to emphasize the importance of a careful postnatal examination six or eight weeks after delivery when the cervix can be thoroughly inspected and its condition accurately determined.

We feel certain that early treatment of erosions, eversions and mild infections will prevent the occurrence later of more serious lesions including some cases of cervical cancer and our experience has convinced us that in the cautery we have one of the safest, simplest and surest methods for their cure.

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Discussion.

DR. JAMES A. McCANN: I didn't know I was to discuss this very interesting and instructive paper this afternoon. I wish to thank Dr. Noyes and Dr. Corvese for the pleasure of hearing it.

In the great percentage of mothers with leucorrheal discharges who present themselves to us for examination we may find no abnormalities in the

uterine body or in the tubes and ovaries. The discharge is due to an uncomplicated endocervicitis. Curtis of Chicago studied many cases of chronic leucorrhoeal discharges with uncomplicated tubes and ovaries and proved conclusively that the inflammatory process did not extend above the internal os. A study of a number of uteri removed on our own service seemed to prove that in marked chronic endocervicitis of non-specific origin there was no inflammatory endometrial reaction of the uterine body.

I do not believe that these cases can be properly treated in one's office. The cervix should be well dilated and if cauterization is to be done, it should be done properly. In my opinion there is never any need of using a curet in the uterine body in any case of endocervicitis. The practice is really dangerous and can be of little if any value.

The only points which I wish to emphasize are these: In treating endocervicitis with the cautery in the child-bearing period, give the patient a general anaesthetic, cauterize, but keep a curet out of the body of the uterus.

DR. H. C. PITTS: I should like to compliment Dr. Noyes and Dr. Corvese on the work which they have done on this very important subject. It seems to me that we all see a large number of cases where examination shows tenderness in both fornices with dull pain in the pelvis. In this large class, the cervix is generally lacerated and infected. It has been my experience that they are relieved by proper application of the cautery. Until this past year, I had not been converted to the use of the cautery. Since using it, however, I find it has a very important field and certainly gives most satisfactory results. I think the work done has been most admirable.

DR. GEORGE W. WATERMAN: I should like to say a word about this subject. For the past year and a half or two years I have used the cautery at the Rhode Island Hospital Out-Patient Department and while I have great respect for what Dr. McCann says about the necessity of anesthesia where the cautery is to be applied, I think there is a large proportion of cases which can be successfully treated and greatly benefited without a general anesthetic. I think that many of the women who come in with a general run down nervous condition, backache and leucorrhoea are very much benefited

by a few applications of the cautery, not attempting to do too much but getting what you think is the right amount of reaction. Within a week's time you see a remarkable improvement. I think it is a thing that many more of us who are doing this kind of work could take up and study with much benefit to our patients.

OBSERVATIONS ON THE HEALTH OF CHILDREN IN AN INSTITUTION.*

WILLIAM P. BUFFUM, JR., M. D.

REUBEN C. BATES, M. D.

The following article shows the results of the survey of the children in an orphanage. It was thought that it would be interesting to see what the physical examination of a group of children in one of our best Rhode Island institutions would show. This was suggested to us by "Observations on the Health and Growth of Children in an Institution," by Holt and Fales¹ and "Health and Growth in an Institution," by Katz and Gray.²

The group studied was that of St. Mary's Orphanage in East Providence. It has been considered by those connected with this orphanage that the inmates have been unusually well and happy for institutional children. Their nutrition and color has appeared good and they have appeared to be lively and in good spirits.

The Institution:

The buildings are of wood, three stories high, and have ample light and ventilation. The children are separated into three main groups. 1. Infant Ward accommodating 16 infants up to three years of age. This section though accessible from the main building by a corridor is separate in every working detail. 2. Nursery Section taking children from three to six years of age, and accommodating 21 children. Here they have their own dining room, play room and piazza. The sleeping dormitory consists of 21 beds, one for each child. 3. The Industrial Section can take care of 23 children from six to fourteen years. Here the boys and girls have separate sleeping quarters. Ample bathing facilities are adjacent to all the dormitories. The playground is in the immediate rear for organized play. There is a small isolation ward ac-

*Read before the Providence Medical Association, January 4, 1926.

commodating five children and a hospital on the grounds entirely separate from the other buildings.

Routine:

The children rise at 6 A. M. and wash and dress. At 7 they have breakfast. The younger children have a lunch and rest period at 10:30. The older ones attend the local schools in East Providence from 1 until 3 P. M. From then until supper is play time. Supper comes at 5:30. The older children go to bed at 7:30. They are also encouraged to assist in the light sweeping and washing of dishes.

During the vacation periods all children are taken out doors as much as possible and in the infant ward open piazzas have been constructed so that routine sun exposures may be given the growing children. Not less than 4 weeks and in many cases the whole vacation period is given the children either at the seaside or in the country. When possible it is planned to place the children with relatives during these vacations. We believe this return to the family group is good for both adult and child.

Diet:

Table No. 1 gives a typical weekly diet at the institution. Each child is allowed one quart of milk per day. Soups are made from meat stock with vegetables added. In summer cold cereal is served three times a week. Lettuce and tomato salad is also used extensively when in season. All children receive the same food but the quantity is varied according to the age of the child. Bread is allowed ad libitum, and surprising amounts are consumed each day. The bread is made at the institution and the average consumption per child per day is over half a loaf, or one pound. The feedings of all infants are prescribed by the physician on duty.

TABLE 1.

Menu for a Week.

SUNDAY

Breakfast—Cold cereal, bread and butter, fruit, milk.
Winter—Cocoa made with milk.
Dinner—Summer—Cold meat salad, potatoes, gravy. Winter—Pot roast with two vegetables, Jello, bread and butter, water.
Supper—Bread and butter, fruit cake, milk.

MONDAY

Breakfast—Hot cereal, fried potatoes, milk, bread and butter.

Dinner—Cold beef or lamb, boiled potatoes, carrots or turnips, bread and butter, rice pudding.

Supper—Bread and butter, prunes, cake, milk.

TUESDAY

Breakfast—Hot cereal, fruit, bread and butter, milk.

Dinner—Stew with vegetables and dumplings, bread pudding with raisins.

Supper—Stewed prunes, fried potatoes, bread and butter, milk.

WEDNESDAY

Breakfast—Hot cereal, toast and butter, milk, fresh fruit.

Dinner—Hamburg steak with beets, potatoes, bread and butter, rice pudding.

Supper—Baked apples, bread and butter, cake, milk.

THURSDAY

Breakfast—Hot cereal, bread and butter, milk, fruit.

Dinner—Corned beef and cabbage, bread, potatoes, custard pudding.

Supper—Prunes, cake, bread and butter, milk.

FRIDAY

Breakfast—Hot cereal, bread and butter, milk.

Dinner—Fish, potatoes, onions or eggs, tapioca or Junket, bread and butter.

Supper—Apple sauce, cake, bread and butter, milk.

SATURDAY

Breakfast—Hot cereal, bread and butter, milk, fruit.

Dinner—Baked beans, brown bread and butter, stewed fruit, cornstarch pudding, milk pudding.

Supper—Bread and butter, prunes, cake, milk.

General Health:

a. The general health of the children is supervised by the visiting physicians and each child is examined before admission to the institution. Every child is immunized against Diphtheria and vaccinated after six months of age. There has been comparatively little sickness of any kind in the institution during the past two years. During the past ten years there have been three deaths, one from Pneumonia following Measles, one from Cerebro-Spinal Meningitis, and one from Congenital Heart Disease. The especially good physical condition of the children reflects much credit upon the management of the home.

Family History:

Fifteen children gave a family history of tuberculosis in either one or both parents. Three children gave a family history of insanity while four gave a history of epilepsy and one of syphilis.

Examination of Children:

Fifty-six children were examined, the number of children present at the time of the first examination. The oldest was 15 years, the youngest was 7 months, the average age was 5 years and 9 months, 11 were under 2 years. Unless otherwise

stated, the figures quoted apply to the 45 children over 2 years of age.

Of these 45 over 2 years of age, 3 were more than 10% below weight, and 2 others, a total of 5, or 11%, were more than 7% below weight, according to the Baldwin & Wood age, height, weight tables; 13 were below the average. This compares very favorably with a report on 14 orphanages by Emerson in which he found 50 to 67% were under the average, and 30 to 50% were 7% or more underweight.³

Each of the children was examined according to a definite routine and the examination was made a part of his permanent record. The results are not given in detail because of lack of space. We found one child suffering from Chronic Heart Disease and one from Congenital Syphilis. Twenty-four children had definitely palpable glands in the cervical region. Nineteen had had their tonsils removed and we found 14 or more in which this should be done. Many children were found with decayed teeth, 26%, showing the need of dental treatment. Albumin was found in 4 specimens of urine, but this disappeared on further examination.

Five children were found to be backward in their school work and were examined by Drs. Ruggles and Butterfield. They were below normal in mentality and advised to be placed in special schools. Thirty children attending the public schools of East Providence were found to be normal in their school work and compared favorably with children coming from private homes.

Tuberculin Test:

Tuberculin Tests were done on the children and the results are of considerable interest. The intradermal method was employed in making the test because of its accuracy and ease. To make the test we used 0.1 cc. of 1:1000 dilution of Old Tuberculin. This was injected intracutaneously on the flexor surface of the left forearm. The first Tuberculin used was furnished by the New York City Board of Health. Doubtful cases were retested with a commercial preparation.

Table No. 2 shows that over 50% of all the children gave a positive Tuberculin test. This is probably accounted for by the fact that being an orphanage more children are present whose parents had died of tuberculosis than would be found in an average group of children elsewhere.

TABLE 2.

RELATION OF NUTRITION AND TUBERCULIN TEST

	No. Tested	% +	% -
Orphanage children, all over 2 years	44	55.5	44.5
Orphanage children, 7% or more underweight	5	80.	20.
Orphanage children, below average in weight	13	77.	23.
Orphanage children, above average in weight	31	45.	55.
Lakeside Vacation Home children, mostly malnourished (not pre-ventorium group)	328	58.	42.
Happyland children, not malnourished (Von Purquet Test used)	35	20.	80.
Bellevue Hospital Wards, 7 to 9 years old children ⁴	?	28.	72.

Table No. 2 also illustrates the fact that among all malnourished children there is a higher percentage of positive tuberculin tests than among children whose weight is up to the average. This suggests the explanation that a considerable proportion of children that give a positive tuberculin test have a sufficient infection in the hilus tissue to cause malnutrition. Another explanation would be that the malnourished children are the more susceptible to this infection. This association of malnutrition and a positive tuberculin test seems to be a significant one, and leads one to believe that these children should be treated as potential tuberculosis cases and receive tuberculosis treatment at least as long as the malnutrition exists.

In examining these children as well as others, we feel that clinical evidence, such as poor general condition, a positive tuberculin test, a bronchial whisper below the second dorsal spine, paravertebral dullness and an X-ray plate showing marked changes frequently suggest a probable diagnosis of clinical hilus tuberculosis and occasionally justify a positive diagnosis.

On eight of our children we made a diagnosis of probable hilus tuberculosis. In other words, we believed that they had an active tuberculous infection in the lymphatic system of the hilus region which was responsible for their poor condition. The evidence on which this diagnosis is based is shown in Table 3. This tabulation is unsatisfactory, as four of the factors, the child's condition, the paravertebral dullness, bronchial whisper, and the interpretation of the X-rays are partly dependent on the individual opinion of the examiner. In this study the percentage of underweight is

used, not as the best index of the child's condition, but because it is convenient for statistical purposes. The paravertebral dullness was recorded by one of us at one examination before the histories or X-rays were obtained and without consideration of the other factors. The X-rays were interpreted by Dr. Gerber.

TABLE 3.
HILUS CASES

Name	Age	F.H.	Nutri- tion	T.B. Test	X-Ray	P.D.
Mary B.	14.6	?	-2%	+++	+	++
James D.	7.6	+	-5%	+++	+	++
Ralph D.	6.1	+	-1%	++	-	++
Mary H.	8.7	+	-13%	+++	±	+
John K.	7.3	+	0	+++	±	++
Emma M.	7.	0	-4%	++	+	++
Freda M.	5.9	+	+14%	+++	+	++
John R.	8.8	+	-4%	++	+	++

SUMMARY

1. The fact that a high percentage of these children have been exposed to tuberculosis brings this problem into prominence and necessitates continued study and treatment.

2. The state of nutrition of the children is good, being considerably beter than that found in most similar institutions, and fully up to the average of children in private homes. The board and staff of the Orphanage are, therefore, to be congratulated on the success of their management.

Thanks are due to Dr. Gerber for interpreting our X-ray films, to Dr. Pickney for taking the X-rays, for furnishing the statistics from Lakeside and Happyland, and for providing us with history and physical examination blanks, and to the staff and friends of St. Mary's Orphanage for their hearty cooperation.

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ARTERIO-SCLEROSIS.*

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The title of this paper, Arterio-sclerosis, connotes such a broad field that I hasten to assure you that I shall attempt to give only a brief resume of our present knowledge of the subject passing lightly over the pathological studies which have been carried on with great patience and skill, both in this country and abroad, and giving more particularly the conclusions as they affect, not the research worker, but the practitioner on the firing line.

As practitioners we are primarily interested in diagnosis, prognosis and treatment. As Yandell Henderson says:

"To understand, to predict, to control; these are the objects of all scientific investigations. The last and greatest is control but unless we have first attained an understanding of the nature and working of basic phenomena, prediction is inaccurate or impossible and control is incomplete and unreliable. Such, I take it, is always the relation of applied science to pure science."

Of the various definitions of arterio-sclerosis that given by Osler is the shortest: "A condition of thickening of the arterial coats, with degeneration, diffuse or circumscribed." This definition states the two essentials of arterio-sclerosis, formation of new tissues and degeneration. Thickening without degeneration, as in thrombo-angeitis obliterans, is excluded. Also for the purposes of this paper we would exclude certain forms of arterial disease whose causes are known, as syphilitic and tuberculous endarteritis.

Arterio-sclerosis is primarily an anatomical rather than a clinical entity. It is then more convenient to classify the forms of arterio-sclerosis morphologically rather than clinically, because clinically the various forms tend to overlap and the symptoms vary, not according to the type of pathological condition present, but according to the particular organ or organs involved.

The forms most commonly recognized are Nodular, Senile, Diffuse hyperplastic and Monckeberg's Sclerosis.

The Nodular form is found chiefly in the aorta and larger arteries and is characterized by the

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presence of irregular plaques which begin as gelatinous masses and later harden and become calcified or go through fatty degeneration. In the latter event the softened tissue breaks down and is carried off by the blood stream, leaving the so-called atheromatous ulcers. Microscopically the primary change is a proliferation of the cells of the intima, chiefly the subendothelial layer, followed by degeneration. The media under these spots is usually thinned and may show fat necrosis.

In the Senile form the characteristic lesions are found most commonly in the medium sized arteries such as the temporal and radial. The process is essentially the same sequence of proliferation and necrosis, the most noticeable difference being that the whole circumference of the vessels is affected, rendering them rigid—the well known pipe-stem arteries.

In the diffuse hyperplastic form, sometimes spoken of as arterio-capillary fibrosis, the thickening occurs chiefly in the small arteries and arterioles. This is followed by degeneration. The lumina are occluded and many of the capillaries disappear. There may be a thickening of the media and occasionally even the adventitia may be affected. In this diffuse hyperplastic form the larger vessels are relatively free from change, but may be affected coincidentally by the nodular form.

The point is made by Geoffrey Evans that the cell proliferation comes before any degenerative changes and is evidence of inflammation, a response to irritation and not the secondary effect of necrosis of cells in the immediate neighborhood. He visualizes arterio-sclerotic disease as an active process capable of progress or arrest, not simply as the end result of arterial decay.

In considering the etiology we come immediately to the much discussed question of the relationship of hypertension to arterio-sclerosis. Which is cause and which is effect? There is a group of cases with blood pressure persistently over one hundred and eighty and yet without demonstrable disease of the arteries or kidneys. This is the so-called hyperpiesia. If this hypertension does not disappear it undoubtedly leads to arterio-sclerosis. In the second group the increased pressure appears apparently at the same time as the evidences of arterio-sclerosis and these are followed later by disease of the heart and kid-

neys. In the third group the hypertension is very evidently secondary to a pre-existing nephritis and cardio-vascular disease.

We are ignorant of the precise causation of these vascular changes, but we do know some of the conditions which seem to favor the onset of arterio-sclerosis. As a concomitant of old age arterio-sclerosis is the natural result of the wear and tear of life. With a normal heredity and no undue stress the senile form does not usually make itself manifest before the sixth decade of life. An earlier onset is determined either by an hereditary tendency to early arterial decay or by subjection of the individual to more than the usual amount of physical or mental wear and tear.

Certain intoxications such as alcohol, lead and gout have long borne the blame for the early onset of arterio-sclerosis, although the mechanism has never been clearly proven. The toxins of a disturbed metabolism or of acute infections are known to be followed by changes in the arterial walls. These changes are frequently found after typhoid fever.

The question of diagnosis is a double one. First we wish to know whether the condition is present and next we wish to determine the degree of activity. An old arterio-sclerotic condition due to a long past infection and not progressive is vastly different from an active, rapidly progressing arterial disease.

The signs and symptoms of arterio-sclerosis are largely dependent upon the dysfunction of some organ or organs, due to their impaired blood supply. The signs and symptoms of active arterio-sclerotic disease on the other hand are primarily hemorrhage and pain. These are best exemplified in those cases in which the process is too severe and rapid to permit of any repair. The two dramatic terminations due to arterio-sclerotic disease are cerebral hemorrhage and angina pectoris.

Here we have the sign hemorrhage and the symptom pain. Hemorrhage points to diseased vessel walls. Hypertension alone, whether sudden or prolonged, will not cause hemorrhage from a healthy vessel. We have all seen people live for years with systolic pressures of three hundred. On the other hand hemorrhage may occur from a diseased vessel with a normal pressure. From this it follows that hemorrhage anywhere in the body may be the signal that there is active arterio-

sclerotic disease. We are familiar with the recurrent epistaxis of the arterio-sclerotic, but we do not always give proper weight to the occurrence of hemorrhage elsewhere. The same process may occur in the lungs, kidney, intestine or uterus.

Microscopic hemorrhages of great significance may be detected if we are on the watch for them through examination of the urine and the fundus oculi. These signs may well antedate any other signs or symptoms. In patients of middle life who have gross hemorrhages it is well to look beyond the apparent local cause for a possible arterio-sclerotic disease.

The typical pain of arterio-sclerotic disease is the pain of angina pectoris. In the full blown attack this pain is so severe and so obviously points to a not distant fatal termination that it usually receives the respect due it. Unfortunately, however, it is not always recognized at its first appearance for what it is. Many an acute indigestion proves in the light of later developments to have been an early manifestation of angina. Any pain in chest or abdomen coming on after exertion or at night after the ingestion of a full meal in a person of middle age, merits careful investigation. The early anginal pain may be little more than a feeling of discomfort, and left to himself the patient may attempt to "walk it off," than which few procedures are more unwise.

Within the month the writer was called at midnight to see a man in the middle sixties who thought he was suffering from an acute indigestion. He said that the previous night he had had a similar attack, somewhat less severe. It had subsided and during the day he had gone about his business only to have it recur that night. Six hours later he was dead.

There are other pains which may point indirectly to arterio-sclerosis. Pains in the occipital region, neck, hips and legs, are frequently dependent upon this condition. Superficial arteries are sometimes tender and the pain of arterial embolism is sudden and severe.

In arterio-sclerosis as in so many other conditions with which we are called upon to deal the symptomatology is almost infinitely varied. If all our cases followed the textbook pictures Medicine would cease to be an art and fall to the level of a science. The typical points, however, for which we look are as follows: thickened super-

ficial arteries, and care must be taken that they be palpated when they are empty of blood, hypertension, hypertrophied left ventricle with accentuated aortic second sound, possibly increased urinary output with transient albuminuria and occasional hyaline casts.

A patient with this symptom complex may continue in apparent good health for years, or the condition may progress rapidly. The particular symptoms for the relief of which he seeks a physician depend upon which organ or organs have been most impaired in their blood supply.

If the principal damage is to the blood supply of the heart a thrombosis may cut short the patient's history without warning, or he may show the signs of myocardial degeneration. Hypertrophy may give way to dilation, the valves may become incompetent and the symptoms of a general cardiac failure may dominate the picture.

The blood pressure is usually high but in the later stages may be extremely low because of the failing power of the heart.

The cerebral symptoms are many and include those which are characteristic of the various degenerative conditions which follow hemorrhage from or occlusion of the smaller arterial branches. There may be fugitive attacks of aphasia, hemiplegia or monoplegia. These attacks clear up in a few days and most authorities agree that they are best explained on the hypothesis of transient vascular spasms. This is impossible to prove and so the field is left open to those investigators who believe that every such attack is the manifestation of minute cerebral hemorrhage. Failure of the mental powers, either transient or progressive, is seen, but some patients with advanced sclerosis of the cerebral arteries may keep their faculties at normal keenness until struck down by some sudden vascular accident.

Gangrene of the extremities may result from the slow occlusion of the arteries or from their sudden plugging by an embolus.

Cramps in the leg muscles and inability to walk either fast or far because of the pain is a result of sclerosis of the arteries of the lower extremities.

TREATMENT includes both the general management of the patient and the administration of drugs. If obliged to choose one method to the exclusion of the other, the decision would unques-

tionably be for rational living rather than for dosing. To be of greatest benefit to the patient the rational living should begin long years before the diagnosis is made. In other words we should all consider not only our patients but ourselves as potential victims of arterio-sclerosis. The old Greek ideal of "nothing to excess" is most applicable in so regulating our lives that our arteries may function long and well.

The laborer in the steel mill and the high salver load his stomach. The question of allowing meat should be decided with reference to the presence or absence of nitrogen retention. Meat stock soups, however, are high in extractives and low in nutriment and had best be omitted. In the absence of oedema enough liquids may be allowed to satisfy the thirst. A salt poor diet is desirable.

Regulation of the bowels is of great importance both to insure a sufficient excretion of toxic matter and to prevent straining at stool which if hypertension is present may be the immediate cause of the rupture of a diseased cerebral artery.

EXERCISE should be moderate and carefully graduated to the condition of the circulation and should never be carried to the point of dyspnoea or marked fatigue.

In BATHING the same moderation should be observed. Baths should be neither very hot nor very cold. As well send a man running up hill as to put him under a cold shower. As cardiac gymnastics there is not much to choose between the two procedures.

OCCUPATION. The high pressure business man must be told to let up, but it is undoubtedly a serious mistake in a case of moderate severity suddenly to take away all business contacts. This in the patient's view is to remove all incentive to live. Just here it is of value to be able to differentiate the actively advancing case from the static arterio-sclerotic condition.

A sufficiency of rest and sleep is essential and it is well to insist upon regular rest periods during the day. If nocturnal sleeplessness is present try first the simple measures such as a tepid bath followed by a glass of warm milk. If these fail, resort must be had to hypnotics, for sleep must be had. The best are probably the bromids and the synthetics, including the barbitol group.

When we come to consider the MEDICINAL treatment we find as in so many other conditions that there is no specific treatment for arterio-sclerosis. We must treat not the disease but the patient. For many years the iodids have been used with very little demonstrable result, if we except the almost inevitable disturbance of gastric digestion. This may indeed be a blessing in disguise by fond of the joys of the table.

For-hypertension the nitrite group is of value. interfering with the appetite of the patient over Amyl nitrite gives us spectacular results in some cases of angina pectoris, but its effects as a vasodilator are short lived. To a less degree the same may be said of nitroglycerin. In erythrol-tetranitrate we have a drug capable of similar effects but whose action is slower and of greater duration. Personally the writer feels that more comfort is derived from the taking of the bromids than from any other single drug. This, of course, refers to the more or less chronic conditions and not to the vascular emergencies.

The SYMPTOMATIC treatment resolves itself into the attempt to correct so far as possible the dysfunction of the various organs with whose blood supply there has been interference.

In CONCLUSION, then, we must be always on the alert to recognize at the earliest possible moment the signs of a beginning arterio-sclerosis that we may early advise our patient in regard to the needful regulation of his activities. In order that we may do this intelligently we must differentiate between a more or less stationary condition of arterio-sclerosis and an actively progressive arterio-sclerotic disease. In the former case little is needed in the way of restriction beyond the general advice to live moderately, provided, of course, the kidneys and myocardium are in good condition. In the latter case, however, the activities of the patient must be cut to the minimum, even to the extent of absolute rest in bed for the severest cases. It is the border line cases which will test our diagnostic acumen. To the patient our decision is all important.

We must neither take away needlessly the pleasures of normal activity nor must we through carelessness or a mistaken compliance with the patient's wishes allow him to go to an untimely death.

VOMITING AND ABDOMINAL PAIN IN
NEUROLOGICAL CONDITIONS*

By HARVEY B. SANBORN, M.D.

PROVIDENCE, R. I.

I wish to speak first briefly of pain and vomiting in general and then to speak at greater length of some of the neurological diseases which most frequently simulate an acute abdominal condition and so sometimes offer important diagnostic problems.

We may think of pains according to the source from which they arise and classify them as follows: (1) First and most common are the pains which are caused by a disease process which is outside of the nervous system but which stimulates nerve endings in the diseased or injured part in a way or to a degree to be perceived as pain. We are taught in physiology that pain may be caused either by stimulation of special sensory endings adapted to the perception of pain or by excessive stimulation of temperature or tactile sensory endings. So far as I am aware special sensory end organs for pain have not been demonstrated within the abdominal cavity, and it seems to me probable that pain arising therein is caused by excessive stimulation of undifferentiated sensory endings. It is interesting to note that the healthy contents of the abdominal cavity is comparatively insensible to pain from certain stimuli which would be painful on the skin surface, such as pin prick or a cut with a sharp instrument. This is explained by regarding pain as a biological development with a purpose, that purpose being the protection of the individual. Since, under natural conditions, the abdominal viscera have not been exposed to stimuli of this sort, a painful response to them has never developed. On the other hand, such stimuli as squeezing, tension, crushing, pulling, etc., are painful. For example: spasm of the muscular wall of gland ducts or hollow viscera is painful. Localization of intra-abdominal pains is poor and the painful viscus causes pain to be referred to that part of the body surface supplied by the spinal nerve from which arises the sympathetic nerve branch supplying the viscus.

(2) A second general source of pain is a diseased or toxic condition of some part of the sensory tracks of the central nervous system, not-

ably nerves or the sensory ganglia. Examples of pains of this sort are the pains of a neuritis or those caused by a chronic inflammatory or degenerating process going on in the sensory spinal ganglia such as occurs in tabes.

(3) A third source of pain is primarily or essentially within the psyche. In other words, the pain is due to a functional state of the cerebral cortex, and intimately associated with it a disordered state of the vegetative nervous system. Hysterical pain is the chief illustration of this sort.

In brief then, we may have pain (1) due to a pathological condition outside of the nervous system; (2) due to disease of the nerve structure itself; and (3) due to a psychic state.

A classification exactly similar to the above may be made of cases of vomiting. (1) In the first group we have those cases of vomiting due to some disorder of the stomach itself or of some other viscus; the nervous system simply supplying the reflex arc by which a sensory stimulus results in the motor act of vomiting. An overloaded stomach or an inflamed appendix are examples. (2) Secondly we have cases of vomiting due to a toxic state of the nervous system as in the initial stage of various infectious diseases or due to concussion of the brain or increased intracranial pressure causing irritation of the vomiting centre in the medulla, (3) and thirdly we have those cases of vomiting due to a psychic state; it may be simply a disgusting sight that arouses it, or it may be a hysterical state.

I wish now to cite brief case histories illustrating the three neurological conditions which every once in a while present acute abdominal pain and vomiting as outstanding symptoms, and for that reason have to be kept in mind by surgeon and internist as possible causes of these symptoms.

CASE 1. L. S. 48 yrs. Female. Married. Admitted to the hospital after suffering for two days from vomiting and epigastric pain. On being questioned, she stated that with the pain there was the sensation as of a rope tight about the upper abdomen, the ends crossed, and the rope twisted slightly. She gave the history of having had several similar attacks during the preceding six years, but none quite so severe as this one. She had not suffered from lightning pains in her limbs, and there was nothing in her past history to suggest syphilis. The average duration of the attacks had

*Read before the Providence Medical Association June 7th, 1926.

been about a week, and at these times she would be confined to her bed. Her examination showed normal temperature and pulse; abdomen somewhat sore throughout epigastrium, but no localized tenderness nor rigidity and no distention. Her pupils were regular but unequal, and reacted neither to light nor accommodation. Her blood Wasserman 4 plus with cholesterin, 0 with acetone. Spinal fluid examination as follows:

Cell count 50 (all lymphocytes); Albumin trace; Globulin negative; Sugar normal; Colloidal Gold Curve 0111000-000; Wasserman negative.

The diagnosis of Tabes with Gastric Crisis was made, based on the partially positive laboratory findings, the unequal, non-reacting pupils, and the fairly typical history of attacks of gastric crises. The pain and vomiting in such a case is presumably due to the syphilitic process involving the sensory spinal ganglia of the spinal segment supplying the epigastrium, or possibly to the accumulation of toxins.

(2) The second case was seen by me in consultation with a surgeon who had at first considered an acute surgical gall bladder. The patient, a married woman thirty-eight years of age, had had a mild grip attack two weeks previously and had apparently recovered. Three days before I saw her she again became ill, soon showing some fever, pain in the upper right quadrant of the abdomen, vomited a few times, and was rather dull and sleepy.

Examination showed a moderate fever, a rather dull mental state, no definite abdominal tenderness nor rigidity, but on inspection a frequent and regular twitching of some of the muscle bundles in the right upper quadrant. There was a slight ptosis of the right upper eyelid and slight weakness of the internal rectus muscle of the same eye. The reflexes were normal and there were no abnormal reflexes. There was slight stiffness of the neck. The blood gave a negative Wasserman test. The spinal fluid gave a cell count of 27 about evenly divided between polynuclears and lymphocytes, slightly increased globulin, negative colloidal gold, positive mastic and negative Wasserman. The clinical picture had changed from one suggesting an acute surgical condition to one definitely neurological. On the febrile reaction with eye muscle paresis, the rhythmic muscular twitching, and the spinal fluid findings, a diagnosis was made of epidemic encephalitis, which was confirmed by the further course of the disease. In

these cases of encephalitis the pain, when present, is presumably due to an acute inflammatory condition involving the spinal sensory ganglia.

(3) My third case is that of a married woman, age 32, who was admitted to the hospital with a moderate fever and evidence of tonsillitis. She gave a history of previous attacks of tonsillitis and one attack of acute rheumatic arthritis. Also, from the age of thirteen, she had been subject to so-called fainting spells in which she would seemingly become unconscious, and in some of them go through some purposeless motor activities and perhaps scream. After her admission to the hospital, the evidence of tonsillitis soon disappeared. She had one or more of her spells nearly every day. She began to complain of pain in the right lower abdominal quadrant and to vomit every time she ate or drank anything. The pain was constant and the vomiting persistent, but her temperature was by this time normal and she did not appear especially sick. Examination showed some general superficial abdominal tenderness, but no rigidity and no masses. It was found that she could be brought out of her spells by pressure on the supra-orbital nerve. On going into the history of these spells more carefully, it was learned that as a child she was punished for something by her father. She took the punishment in a bad spirit and refused to speak to her father afterwards. He became sick and died without the girl having a chance to make up with him. Shortly after her father's death she had her first spell. As these spells were manifestly hysterical and as there were no certain signs of abdominal pathology, it seemed probable that the vomiting and abdominal pain were hysterical. A little psychotherapy in the form of suggestion was given; less attention was paid to her abdominal condition, and very soon she was recovering. In these cases of hysteria we think of the symptoms as being psychic in origin, but they are more understandable if we think of the vegetative nervous system as being in a state of disordered function as well as the mind. Deranged vaso-motor functions result in localized congestions and various motor and sensory pathways become hyper-irritable, so that pains, tenderness and various reflex acts such as vomiting, hiccoughing, etc., may manifest themselves.

I have thought it of some interest to cite three actual cases which, to my mind, represent the three neurological conditions which are most apt at some stage to give a picture at least suggesting abdominal disease due to the presence of acute abdominal pain and vomiting. These are (1) tabes with gastric crisis, (2) epidemic encephalitis, and (3) hysteria.

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EDITORIALS

THE MENACE OF CHOREA

The dead hand of medical tradition is nowhere more heavy than in the matter of chorea. Misled by our eyes we still regard this dangerous disorder as a nervous disease, and indeed as a functional nerve disease—the worst error of all, for by so doing we fail to comprehend the gravity of the situation which confronts us. It were far better

for our little patients if the writers of text-books, instead of waiting on the deliberations and hesitations of pathologists and bacteriologists, should follow the evidence of clinical experience and place chorea under the diseases of the heart. This would, at any rate, call the attention of physicians to the most important problem and the most insidious danger which confronts them in the management of a choreic patient. Moreover, it would direct our attention to the main issue rather than leave us in the fool's paradise of thinking that the adequate treatment of chorea is being followed

when we prescribe a preparation of arsenic together with some more or less harmless sedative. If, as we should, we look upon chorea as being actually, or potentially, a disease of the heart, we shall not deceive our patients and ourselves with the false belief that chorea is of no particular importance.

A good many years ago Norman Moore, lecturing on acute rheumatic fever, before the Royal College of Physicians, remarked that it was his considered opinion that any patient presenting acute articular symptoms who did not at the same time give evidence of cardiac involvement, was the victim not of rheumatic fever, but of some other type of arthritis. Now while it would be perhaps wide of the truth to say that any patient presenting irregular muscular movements without cardiac involvement is no subject of chorea, nevertheless anyone with much experience of chorea would hesitate to demur to such a statement as a practical guide to treatment. When one has, time and again, watched the development of endocarditis and even of carditis in patients whose motor symptoms were only moderately severe, he is likely to become more than impatient with the conception of chorea as a nervous disorder which the little patient will "outgrow."

Well then, how shall we regard chorea? Certainly as an infectious disease and always as a serious condition requiring two things, first, the immediate removal of every focus of possible infection; and secondly, the prescription of rest in bed for the patient. This, some conservative may remark, is pretty radical; and so indeed it is, were the evidence for its need less convincing. How many choreic patients, do you suppose, are walking about, playing such games as base-ball and even going into the water to bathe, whose teeth, tonsils and adenoids are infected, and whose hearts are the seats of serious and perhaps, in the long run, fatal disease? And, by the way, who has ever presented any evidence which scientific thinkers will accept to show that the medicinal treatment of chorea has been effective? Is it not rather that while we are giving our medicines, the natural immunity to infection is being established by the body, and when this has accomplished its work, the patient gradually returns to health. If one excludes from the rubric of chorea the tics and other movements, it will be found that in the vast majority of these patients focal infections in

the mouth and throat are present and should be removed at once. After that we may give any drug or vaccine which our fancy suggests.

And why rest in bed? Because yet again our stethoscopes have misled us. It is false to think that we must have some abnormal sound in a heart as the signal of its sickness. To believe this were indeed to flatter our ears and to invest our instruments with a precision of which they are not capable. Who is skillful enough to discover the earliest departure from health in a choreic heart? And if we are unable to do this, is it not the part of wisdom to act as if every heart were the seat of pathological changes, even when our relatively gross methods of examination cannot demonstrate them? No one would think of allowing a patient with rheumatic fever to remain in school or at work or play, and yet the incidence of heart involvement is just as frequent in chorea as in rheumatic fever. Of course the patient will object to being and staying in bed, and no doubt many of the parents will, and do, protest more than the children. But concerning what do our patients and their relatives and friends not protest? Has the whole history of medicine been anything other than the improvement of the public health in spite of the recipients' none too gracious protestations? As physicians our duty is to order what we know our patients require, not what they, for the moment, think they want. And so it all comes to this—that chorea is an affection of the heart with coincident involvement of the central nervous system; and since the evidence as to causation is practically certain, the treatment of chorea is the removal of all discoverable foci of infection, together with the prescription of absolute rest for the patient until the imminent dangers of cardiac damage have disappeared.

THE DISCOVERER OF ANAESTHESIA

A statue of Crawford W. Long, "the discoverer of anaesthesia," has been placed in Statuary Hall in the National Capitol, and dedicated with elaborate ceremonies. Also, in Hartford, Connecticut, is the statue of Herbert Wells, "the discoverer of anaesthesia." Also, in the Hall of Fame in New York City, is the bust of William T. G. Morton, "the discoverer of anaesthesia."

At the town of Athens, Georgia, in March, 1842, Dr. Long administered ether to a patient and performed painlessly a minor operation. This

is attested by a sufficient number of sworn statements. In the course of the following seven years, Dr. Long made use of ether in as many as eight similar operations, and in December, 1849, he reported his discovery in the Southern Medical and Surgical Journal. The remarkable thing about his discovery was that it made so little impression on Dr. Long, on the local medical profession and on the people of Georgia. Here in the town of Athens had been discovered what Dr. Welch calls "the greatest gift of American medicine to mankind and one of the most beneficial ever conferred." Yet there was no sound of trumpets, no parade, no shrine dedicated, no pilgrimage organized, no evangelist preaching a crusade against human suffering. Instead there was complete, absolute silence for seven years. Unknown, the greatest gift of American medicine to humanity lay buried in Athens and might have remained there forever.

In the meantime, Herbert Wells, a dentist of Hartford, was using nitrous oxid to procure insensibility for painless tooth extraction, and in 1845 attempted to demonstrate his work before the Harvard Medical School. Unfortunately the demonstration was unsuccessful. It seemed that the possibility of painless surgery was too chimerical to ever be realized. On October 16, 1846, William T. G. Morton gave a successful demonstration of etherization at the Massachusetts General Hospital. Immediately the news of the great discovery spread and soon had reached all parts of the civilized world.

Oliver Wendell Holmes originated the term anaesthesia and first used it in a letter to Dr. Morton dated November 21, 1846. He said, "Everyone wants to have a hand in a great discovery. All I will do is to give a hint or two as to names, or the name to be applied to the state produced and the agent. The state I think should be called 'Anaesthesia.' The adjective will be 'anaesthetic.' Thus we might say the state of anaesthesia, or the anaesthetic state."

It certainly was at Boston, in the year 1846, that anaesthesia was discovered to the world. The old operating room at the Massachusetts General Hospital will always be celebrated for the great occurrence of October 16, 1846. The Massachusetts General Hospital is the shrine which is annually visited by pilgrims on the anniversary of

the first successful demonstration of anaesthesia. The entire credit for the discovery can not be given to one alone. It was a natural development of modern civilization. Former ages had been busied more with inflicting pain than with relieving it. By the beginning of the nineteenth century, humanitarian ideals had made considerable progress and human torture was no longer popular. The conception of relief from the pain of surgical operations came to many, but to William T. G. Morton alone is due the credit for the first successful demonstration of anaesthesia. Without his demonstration years might have elapsed before the conception of many minds had ripened into a practical reality.

IMPROVING A THERAPEUTIC AGENCY

Without question the most valuable single therapeutic agency available to the physician or surgeon is a competent, highly trained nurse. Anything which tends to raise the quality of the nursing in a community is of vital importance to the people and is especially appreciated by the medical profession.

In this connection it is of interest to note that the alumnae of the Rhode Island Hospital Training School have had the wisdom and loyalty to endow a scholarship for advanced study. The sum of six thousand dollars was raised, making available annually three hundred dollars to aid the recipient in pursuing a course at either Columbia or Yale. Both universities offer courses for those intending to teach the nursing branches.

Scholarships of this sort help to solve the nursing problem in two ways. They tend to attract the most desirable type of young women and aid in training competent teachers. Without good teachers it is useless to expect satisfactory graduates.

It is to be hoped that other training schools in our state will follow this praiseworthy example.

HOSPITALS

THE MEMORIAL HOSPITAL

Meeting held June 10, 1926.

Meeting called to order at 9:15 P. M. by President Pro Tem. Minutes of last meeting were read and approved.

Members present: Drs. Sweet, Stone, Bates, Kelly, Dowling, Kenney, Shaw, Saklad, Kerney,

Fenwick, Lutz, Holt, Hawkins, Davis, Feinberg, Mills.

Secretary read report from Superintendent regarding visit of Dr. Eaton, representative from the American College of Surgeons. Motion moved and seconded that letter be placed on file.

Report from Surgical Service read by Interne. Dr. Kerney reported on Urological Service. No reports from Medical, Children's, Eye and Orthopedic Services.

Motion passed that no meetings be held during July and August. Mr. William MacGregor from the Board of Trustees was present.

A very interesting paper on "Hints Concerning Eyes" was read by Dr. Joseph Hawkins. Meeting adjourned at 10:30 P. M.

JOHN F. KENNEY, M.D.,
Secretary.

MISCELLANEOUS

REPORT OF THE DELEGATE TO THE MEETING OF THE AMERICAN MEDICAL ASSOCIATION AT DALLAS, TEXAS, APRIL 19-23, 1926.

BY ROLAND HAMMOND, M. D.,
PROVIDENCE, R. I.

It is my privilege as well as my duty to present a brief report of the activities of the House of Delegates of the American Medical Association at the annual meeting in Dallas, Texas, April 19-23, 1926.

The Association had never before met in the southwest, and extensive preparations had been made to provide adequate accommodations for meeting and exhibition purposes, as well as for housing and entertainment of guests. On the whole, the arrangements were satisfactory, although hotel rooms were not always available. In the future, no city will be chosen as a meeting place which has not been investigated and approved by the Board of Trustees.

I wish I could impress upon each one of you the great work which the American Medical Association is doing through its officers and House of Delegates to further the interests of organized medicine by its scientific assembly, its Board of Trustees and the various councils or standing committees. These executives are intensely eager in their devotion to the interests of the medical

profession, to the cause of scientific medicine and to the education of the general public in health matters. It is a powerful organization fighting the battles of the profession in a disinterested way and its activities should have the whole-hearted support of every county and state medical society in the country.

The House of Delegates, as you know, has a similar organization to that of our National House of Representatives, with delegates accredited on the basis of the medical population of the various states. Of the 170 delegates in the House, 141 were present and voting—a remarkable record considering that the place of meeting was so far removed from the larger centres of population. At least two full days of the session are devoted to this work, and more time is required of those serving on reference committees.

The meetings of the House at this session were marked by careful, painstaking work with little that was spectacular. The recommendations of the Board of Trustees, and the various councils received careful study.

The Association is prosperous and has the largest membership in its history, making it the greatest medical organization in the world. The Spanish edition of the *Journal* is becoming more popular and the Directory more profitable. *Hygieia* is growing in circulation and shows a smaller deficit each year. This health magazine should be in the home of every intelligent layman in this country. The reduction in quackery is largely due to the valuable work of the Council of Pharmacy. It was recommended that State societies co-operate with the House of Delegates in a campaign to control irregular practitioners and it was urged that the term "Doctor" be confined to physicians and dentists.

Periodic health examinations were approved and strongly advocated by President Haggard and President-elect Phillips in their addresses.

One of the most vital of the questions discussed was that of expert opinion evidence, because of the public criticism leveled at both legal and medical professions in recent criminal trials. Committees of the American Bar Association and the American Medical Association have co-operated in suggesting remedial legislation, and they endorse the principle that experts in civil and criminal cases should be appointed by the court, paid out of the public funds, and may furnish a written report.

In medical education it was urged that efforts be made to reduce the age of graduation for medical students. The need for the basic trained nurse was recognized and a revision of the curriculum in hospital training schools was recommended.

Committees reported on such varied subjects as zinc stearate dusting powders, trachoma among the Indians, contract practice, narcotics and prohibition. The last subject, which in previous years has come in for much stormy discussion, was lightly touched upon at this session. A committee was appointed to make a survey of the need for a home for incapacitated practitioners. An interesting address was given by Col. Gilbert E. Seaman on the work of the Veterans' Bureau. The House heartily disapproved of the provisions of the World War Veterans Act of 1924.

The Board of Trustees declined to participate in the Gorgas Memorial, because they felt it to be a dangerous expedient to lend its influence to the creation of an enormously financed foundation under federal charter, without adequate control by the Association, which has less than 10% representation on the board, and in view of the fact that the accomplishments of the foundation depend almost entirely on the active co-operation of the medical profession.

On the final day of the session of the House, Dr. Jabez North Jackson of Kansas City was elected President-elect, and Washington, D. C., was selected as the place of meeting for 1927.

The meeting places for the Sections and the Scientific and Commercial Exhibits were held in a large building in Fair Park, about two miles from the center of the city. Taxis ran frequently and charged fifty cents a trip. In Fair Park were held the Texas barbecue and the Mexican dinner, over 10,000 people being fed on each day.

An international touch was given to the meeting by the presence of a company of distinguished Mexican physicians. A large luncheon in their honor at the University Club called forth many expressions of good feeling and friendship from both American and Mexican orators. Following the meeting many physicians availed themselves of a trip to old Mexico, which was conducted under unusually favorable conditions.

Southern hospitality, generous and spontaneous, was everywhere in evidence and Dallas proved an attractive city for a few days sojourn.

UNWARRANTED THERAPEUTIC HOPES

Although drastic restriction in diet no longer characterizes the management of diabetes the problem of suitable foods for diabetic patients still looms large. Insulin is not a "cure"; consequently the most rational policy at present consists, in the words of Joslin, in utilizing this agent along with all those measures that have proved of the greatest value in the treatment of diabetes without insulin. These are: adherence to a diet that will keep the urine sugar-free; avoidance of overnutrition or extreme undernutrition, and a method of life compatible with the strength that such a diet affords. Side by side with the exclusion of foods that promote either glycosuria or ketosis or both has occurred the search for palatable energy-yielding substances that will enrich the dietary of the diabetic patient without giving rise to the untoward consequences mentioned. The proposal for the use of intarvin (glyceryl margarate) by Kahn of New York, whose untimely death has just occurred, represented an attempt to furnish a fat not likely to promote ketosis in its metabolism.

There have been varied efforts to discover derivatives of the sugars of a chemical character such that they will not escape oxidative destruction as ordinary carbohydrates do in the diabetic organism. Caramel-like substances have been recommended, particularly by German clinicians. There are pitfalls, however, which every one interested in such entirely justifiable attempts must learn to avoid. The polysaccharide carbohydrate inulin, which by hydrolysis readily yields the sugar fructose just as starch yields glucose, has been recommended in the past for patients with diabetes. There are experimental evidences that considerable quantities of inulin, or inulin-bearing vegetables such as the Jerusalem artichoke, may be consumed by such patients without augmentation of glycosuria. This does not guarantee an actual utilization or "assimilation" of the inulin, however. There are no enzymes in the alimentary tract of man that are known to digest inulin, although it can be hydrolyzed by the acid gastric juice. It is conceivable, therefore, that the apparent tolerance of diabetic patients for inulin may be due to actual failure of digestion and absorption of this carbohydrate.

The real index of utilization in such instances is derived from observations of the metabolism—

evidences of an actual combustion of the product in question. This is emphasized anew by the recent American studies of commercial glucosane preparations.¹ The anhydrosugar glucosane ($C_6H_{10}O_5$) and its polymer, tetraglucosane, are used in Germany in the dietary treatment of diabetes. These substances are reputed to be oxidized by the diabetic patient since, according to Nothmann and Kühnau² and others, no extra urinary sugar results after its administration, no rise in blood sugar occurs thereafter, and an antiketogenic and protein sparing action follows its ingestion. It is likewise reported to be glycogenic. The new American experiments demonstrate that large quantities of ingested tetraglucosane are excreted unchanged in the feces. Part may be destroyed by intestinal bacteria. As Deuel, Mandel and Waddell significantly point out, if a substance like glucosane is oxidized in diabetic patients it can be proved only by the demonstration of an increased respiratory quotient following its ingestion, coupled with the proof of its absorption from the alimentary tract and its nonelimination by the kidneys. Only rigorous experimental work of this sort will protect the enthusiast against the disappointment of ill founded therapeutic hopes.—*Jour. A. M. A.*, May 22, 1926.

¹Deuel, H. J., Jr.; Mandel, J. A., and Waddell, S. S.: *The Physiological Behavior of Glucosane*, Proc. Soc. Exper. Biol. and Med. 23:431 (March) 1926.

²Nothmann, M., and Kühnau, J.: *Die Therapie der Gegenwart* 9:1925.

OIL OF WINTERGREEN—A WARNING

Among the substances listed in Useful Drugs¹ is methyl salicylate, more familiarly known as oil of wintergreen, and most commonly used in salves or liniments for external application. When thus absorbed or when taken internally, as is sometimes recommended, the drug produces the effects of salicylic acid or the salicylates. Essentially identical doses are suggested. Quantities of 1 Gm. (15 grains) of oil of wintergreen are repeated every hour or two until "maximal permissible amounts"

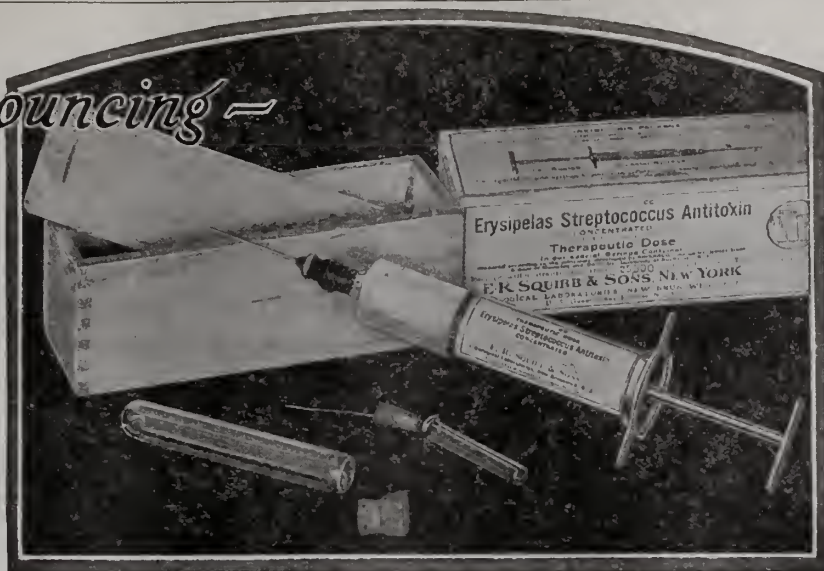
are given, from 6 to 8 Gm. being required to induce symptoms indicative of the limit of tolerance. Salicylates and closely related compounds have a widespread use as analgesics and antipyretics; and they are among the drugs that the laity not infrequently ventures to employ in self-medication. Where this degree of "familiarity" occurs, dangers of improper use always exist. This is clearly emphasized in a recent report of Wetzel and Nourse² indicating, what does not seem to be generally recognized, that methyl salicylate in moderate amounts is a powerful poison. While deaths due to this drug have never resulted from its therapeutic use, instances of untoward effects following accidental or intentional self-administration have been reported. In reviewing the known cases, Wetzel and Nourse ascertained that fatal poisoning may be produced by relatively small amounts of methyl salicylate. Absorption of less than 15 cc. has repeatedly resulted in death. The unexpected toxicity of this drug may be ascribed in part to its comparatively greater lipoidal solubility and in part to the fact that it suffers less destruction within the body after its absorption, when compared with salicylates. In view of the foregoing circumstances, Wetzel and Nourse believe that the therapeutic use of methyl salicylate should be confined to external administration in the form of a liniment or an ointment; and they point out that Sollmann believes this mode of administration is sometimes more effective than when the drug is given internally. From the standpoint of public welfare, the conclusions of the Cleveland clinicians deserve repetition: Access to oil of wintergreen should be made impossible for children and for persons ignorant of its poisonous properties. A further danger exists in the form of the extract and the spirit of wintergreen, both of which may be in demand because of their alcohol content.

—*Jour. A. M. A.*, May 22, 1926.

¹Useful Drugs, prepared under the direction and supervision of the Council on Pharmacy and Chemistry of the American Medical Association, Chicago, American Medical Association, 1925.

²Wetzel, N. C., and Nourse, J. D.: *Wintergreen Poisoning*, Arch. Path. and Lab. Med. 1:82 (Feb.) 1926.

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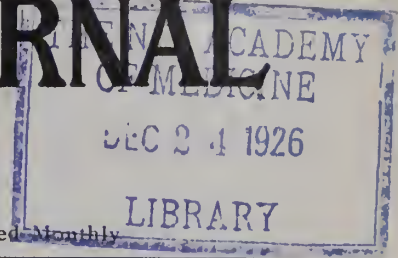
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ORIGINAL ARTICLES

THE OPERATIVE TREATMENT OF FRACTURES*

CHARLES L. SCUDDER, M.D.
BOSTON, MASS.

Great attention is being focussed today on a study of fracture problems in many large centres throughout this country. There is manifest also a very general interest in fractures in the profession at large. At this time I am attempting to state briefly certain facts bearing on the development of the operative treatment of fractures and to express a personal opinion as to the applicability of the operative treatment to special conditions.

When is the operative treatment of fractures of the long bones justifiable?

My reply briefly is: Whenever the operative treatment is needed or required to secure the best result following a given fracture.

It is unfortunate that today large groups of dependable and comparable case histories are not available for study and comparison.

I can personally recall watching with awe thirty-five years ago, Dr. J. Collins Warren, the attending surgeon in my ward 28 in the Massachusetts General Hospital, score or slash a closed fracture of both bones of the leg for impending gangrene, due to tension from hemorrhage following damage to important vessels below the knee. The posterior and anterior tibial pulses were absent, the toes and foot were blue and cool. By these incisions Warren rendered a closed or simple fracture compound or open! The outcome of this logical and bold step was watched with apprehension. The man recovered with a sound leg.

Compare this episode with the certainty, assurance, and boldness accompanying a premeditated incision to the bone today. The change in attitude toward such a procedure is almost unbelievable.

*Read before the Rhode Island Medical Society at the Annual Meeting, June 3, 1926.

I can recall the arguments had at about that same time by C. B. Porter and J. C. Warren, master surgeons, over the use of absorbable vs. non-absorbable suture material in fracture of the patella. At that time, fracture of the patella was the only closed recent fracture treated occasionally by operation. I remember with what glee Dr. Warren heard of a refracture of a healed patella sutured by Dr. Porter with silver wire! Of course, the refracture was thought to have been due to the use of the non-absorbable wire, and Dr. Warren considered at that time that he was more than justified in his contention for absorbable suture material!

Those were stirring times indeed! ! Personal feeling ran high. We youngsters shared in the excitement and of course took sides with our chiefs. We discussed the problems at issue. Those were days of military conformity in surgery. The climate of surgical opinion was foggy. The balanced and enlightened surgical mind of today was in the making.

What a contrast between then and now!
Timidity has given place to boldness,
Emergency measures to premeditated
operations.

The operative treatment of fractures has come to its present important place as a recognized part of general surgery gradually, progressively, and comparatively recently.

All real advance in the art of surgery is and must be individualistic.

The sixteenth century saw the rise of modern science. Copernicus and Vesalius typify the scientific emphasis on direct observation.

The quiet growth and dissemination of science has colored our ways of thinking.

William James wrote, "I have to forge every sentence in the teeth of irreducible and stubborn facts." Surgeons are now more absorbed than ever in stubborn facts and in the weaving of general principles. This balance of mind, this interest in fact and in generalization, has become part of the tradition which infects cultivated thought.

This tradition of a balanced surgical mind is being transmitted as a widespread, fortunate inheritance from generation to generation by our university medical schools and by teaching-hospitals.

Following the recognition in the sixteenth century of the importance of observation and the necessity of recording these observations, there came in the nineteenth century the influence of anaesthesia, of antisepsis, of asepsis, and of the roentgen ray. Agencies each of fundamental basic importance.

In the nineteenth and twentieth centuries were taken the remarkable strides toward the perfection of general surgery, noticeably of neurological surgery, the surgery of the thoracic organs, abdominal surgery, including the surgery of the gastrointestinal, genitourinary, and pelvic organs.

Diseases of all these various organs often killed the individual. The pathology of many of these diseases became generally known. Consequently the best minds of the time took cognizance of relief through appropriate surgery. "As is our pathology so is our practice." Osler.

It was thought that fracture of the skeleton never killed—they only crippled, deformed, and incapacitated. When, however, it came to be recognized that fractures killed (and you recall that the mortality rate in compound fractures was from 85 to 90 per cent! Attention was focused on the dire and lethal condition of an infected fracture. Through the work of Pasteur and Lister soon the mortality from compound fracture was greatly diminished. Today an ordinary civil compound fracture has a low mortality rate.

"As is our pathology so is our practice." Osler.

Fractures continue to be treated unsatisfactorily. In large numbers the long lines of disabled and crippled keep limping on. A moving picture could be constructed of enormous value and startling in its portrayal of fracture disabilities, and that, too, of cases treated today. A hideous commentary and reflection! !

The industrial awakening of the nineteenth and twentieth centuries, the great war, the appearance of complicated machinery, and the universal use of automobiles has been a tremendous stimulus to the treatment of fractures.

Today the involved limb is regarded properly as a part of a complicated and co-ordinated, intelligent mechanism. The limb is interrelated with other

parts of the body. Likewise, the muscular, vascular, and neurological structures are influenced by changes in the limb. Temporary disuse affects these structures. The damage to the limb by fracture may be intimately connected with metabolic and other processes as well. The long bone is a part of complicated mechanism.

The industrial importance of the individual with a fracture relates him to the economic and social structure in a very definite manner.

Today a more precise conception of the nature of bone obtains. Bone is no longer to be regarded as a dry, inert, stable, terminal form of matter. Bone is a living, unstable, changing tissue, sensitive to all extraneous influences and events. Walt's conception of the skeleton as a repository of calcium from which available calcium is always to be had as needed, is suggestive. The conception of the automatic balance of bone calcium being maintained as carefully as is the sugar balance of the body certainly is a fascinating theory.

The reaction of bone tissue to fracture, to trauma, is recognized as a complicated series of events called the process of repair. These processes and many of the influencing factors are being intensively studied. The final word is not yet.

Whether the healing of bone is a physical or chemical process or a combination of the two, is as yet undetermined.

What the exact function and origin of the cells concerned in the reparative processes are, is unsettled.

For our purposes in this discussion, it may be affirmed without fear of contradiction that an appreciation of these conceptions of repair, even though incomplete, has had and is having a profound influence for a sane treatment of fractures.

"As is our pathology so is our practice." Osler.

It is a stimulating thought and I believe a logical one that the serious discussion today of the operative treatment of fractures coincides with the technical perfection of pathological surgery. This is not a mere coincidence. General surgery has been improving, developing up to and for this event. It was impossible for the treatment of fractures adequately to develop until this perfection in pathological surgery had been attained. Lane's attempt at the promulgation of the operative treatment was unfortunate. Such ill-timed popularization was bound to be followed by terri-

ble results and disasters such as have been seen in this country since 1909. Lives, limbs, the power to earn a livelihood were sacrificed in the popular attempts to improve fracture surgery by indiscriminate operating.

The non-operative methods *were* inadequate, as Mr. Lane pointed out. The logical direction for improvement at that time lay in a better non-operative treatment. Those times were not prepared for the operative treatment to be generally adopted.

Someone has said that an uneducated man has two mental pigeonholes, one called absolute truth and the other called absolute falsehood. Every idea that comes to such a man has to be put into one pigeonhole or the other. Whereas, an educated man and especially a surgeon has a long row of mental pigeonholes. That at one end of the row is labelled "Absolute Truth." It is always empty. That at the other end is labelled "Absolute Falsehood," and it, too, is always empty. Every idea, every experiment, every observation, every recorded experience is put into the intervening pigeonholes, and as occasion requires and confirmation is forthcoming, he moves them closer to one end or the other. In this way by a succession of approximations, he approaches absolute truth, the method best suited to the always variable conditions at hand. Surgical theories and practice are only approximately ideal but fortunately are approaching a better and still better standard of excellence.

The recognition of the functional importance of crippling due to fracture, an idea developed by Lane, has been growing for some years. The general industrial awakening to an exact economic value of this loss of function from fracture is a development of recent times.

That the limb is a part of an intelligent mechanism, that the will is involved in every fracture, that it influences the recovery of function: The significance of these facts is too little appreciated.

That bone is intimately involved with other tissues; that a fracture of bone is closely and complexly related to all parts of the body in ways as yet not entirely understood: these are comparatively modern facts and are bound to have their influence on the treatment of fractures.

That bone is a delicate tissue, that it demands and requires consideration because of its peculiar

qualities is a new thought. That bone tissue must be handled gently in manipulation as well as at operation because of the influence upon the processes of repair of such trauma, is coming to be appreciated.

All these facts, together with the general perfection of the procedures of surgery should influence profoundly our appraisal of the operative method of treating fractures.

In my personal estimate of the applicability of the operative treatment of fractures, I assume that the fractures under consideration are seen immediately following injury. They are recent fractures.

The long bones to which I refer are

In the upper extremity:

the humerus,
the radius,
the ulna;

In the lower extremity:

the femur,
the tibia,
the fibula.

This includes fractures which enter the *shoulder, elbow, and wrist* joints, and fractures which enter the *hip, knee, and ankle* joints, as well as, of course, fractures of the *shafts* of these six long pipe bones.

By the non-operative treatment, I understand that treatment which honestly employs:

1. The suspension of the limb;
2. (Adequate) traction;
3. (Adequate) counter traction;
4. A proper hold on the limb of the traction force;
5. Manipulation;
6. Pressure;
7. Counter pressure;
8. And secures the alignment of the limb, and
9. Brings about the movement of involved or contiguous joints as early as possible.

By the *operative treatment* I understand that method which approaches the seat of fracture through an incision. The fracture is directly treated.

I would also include in the operative treatment any procedure which necessitates the making of a wound to facilitate treatment. That is, a tenotomy, the application of a pin or caliper.

I assume by the *operative* treatment

1. That the highest degree of safety to the individual will obtain ;

2. That the surgeon and assistants are skilled in the use of the treatment ;

3. That the surgeon possesses ability more than that needed for the ordinary care legally required ;

4. That the surgeon has available necessary instruments and apparatus ;

5. That the employment of that form of anaesthesia applicable to the case in hand, whether it be regional, local, spinal, or general, will be above criticism ;

6. That the conduct of the operative treatment so far as the pre-operative and post-operative care are concerned is adequate.

7. I assume that the final and exact procedure chosen in the operative treatment of a given case is appropriate.

8. I assume that by this treatment the involved or contiguous joints are moved as early as is possible.

What are the conditions and the facts to be considered in formulating an opinion as to the applicability of the operative treatment thus conceived to fractures of the long bones ?

1. A trial of the non-operative treatment may be made for a few days ; if it is then found to be unsatisfactory, the operative treatment may be used.

2. Skeletal traction will accomplish more than skin traction and by its efficiency may take the place of the open operation.

3. The number of open operations is being materially diminished by the increasing efficient use of skeletal traction.

4. The operative treatment may secure perfect reduction.

5. Absolute fixation may be had by operation.

6. Perfect reposition is desirable, for perfect reposition means more nearly perfect function.

7. Restoration of good form to a broken bone gives a chance of nine to one in favor of good function. Allowance of bad form will give a chance of two to one against a good result. Hey-Groves. This is not an accurate estimate but is suggestive.

8. The operative treatment is a safe treatment.

9. Infection is eliminated.

10. The dangers from the sequelae of sepsis are eliminated.

11. An uninterrupted movement of joints is desirable after fracture. Absolute reduction and perfect fixation of the fracture fragments permit of the earliest movement.

12. The operative treatment will allow the maximum early movement in contiguous or involved joints. Early use of the damaged part stimulates the reparative processes.

13. Delayed union and non-union are not caused by direct treatment. I am not convinced that operation increases the likelihood of non-union.

14. Foreign non-absorbable materials are not always employed in the operative treatment.

15. Non-absorbable steel plates and screws and their equivalents are not irritating, if properly used.

16. Forcible manipulations required by the non-operative treatment may do actual harm and may be the occasion of delayed union.

17. Poorly conducted and poorly applied non-operative methods each may give poor results.

18. The results from a poorly conceived non-operative treatment should not be compared with the results from an ideal operative treatment.

19. Only similar kinds of fractures treated by well conducted methods should be compared.

20. The treatment will be modified to suit the social and industrial status of the patient.

21. Immediate, early reduction is desirable by both methods.

22. Operation is justifiable after trying non-operative treatment.

23. Operation is justifiable as an initial treatment in an increasing number of cases.

You all appreciate the difficulties attending a personal statement of this kind.

Fractures in children—the growing period.

The wonderful compensatory power of growth is depended upon to make up for the deficiencies of the non-operative treatment. How far should this "compensatory power" be permitted to influence the choice of primary treatment? It should not be permitted to influence the treatment of fractures in the lower extremity as it may be in the upper extremity.

In the upper extremity in childhood :

Certain fractures of the upper end of the humerus, high surgical neck fractures, I believe are best treated by operation and simple reposition, possibly without internal fixation. (Incision,

digital confirmation, leverage, fluoroscopic reduction.)

In fracture of the external condyle of the humerus with displacement of the small fragment, the broken condyle should be accurately replaced by operation.

Certain irreducible supracondylar fractures of the humerus should be replaced by incision and direct leverage.

A few fractures of both bones of the forearm which cannot be reduced by gentle manipulation may well be reduced by incision and leverage. Fixation by a four-screw plate may be required.

Fractures of one bone of the forearm, irreducible by manipulation, may be well reduced by incision and leverage.

In the lower extremity in childhood:

Skeletal traction will replace many operations on the femur.

Most femur fractures can be satisfactorily reduced and held by non-operative methods.

Fractures in the adult. Upper extremity. Mobility is desirable.

Operation should be done upon

Fracture of the high surgical neck of the humerus and dislocation of the head;

Fracture of the high surgical neck of the humerus and dislocation of the head;

Irreducible high surgical neck fracture;

Transverse fracture at the middle of the shaft if apposition cannot be secured.

It is so difficult to be sure whether a musculo-spiral paralysis associated with a fracture of the humeral shaft is due to a divided musculospiral or to a contusion of the nerve; that is, it is so difficult to distinguish between a complete and a partial paralysis, that I am inclined to treat the fracture expectantly and delay operation on the nerve. Having secured union of the bone, if the nerve is not permanently damaged, its recovery will be evident when the bone is united, and there will not have resulted undue loss of time in the repair of the nerve by the delay.

A "T" fracture into the elbow joint in an adult should be operated upon if the joint surface cannot be absolutely restored by position, and this is usually impossible.

The neck and head of the radius should be operated upon when the resulting deformity from displacement will impair motion.

Operation should be done upon both bones of the forearm, if accurate alignment cannot be immediately obtained. If the radius or the ulna is fractured with displacement of the fragments, operative replacement is indicated.

Fracture of the olecranon is best treated by the open method.

Fractures in the adult. Lower extremity.

In the lower extremity stability is desirable.

The neck of the femur: At present there should be no primary operation on a fracture through the middle of the neck of the femur. When it is proved that the fracture is not uniting, operation may be done.

Shaft of the femur: In wage-earning laborers and in young adults there are many fractures of the upper, middle, and lower third that I prefer to operate on at once.

Fractures of one or both femoral condyles should be operated upon.

Spiral fractures of both bones of the leg are often best operated upon.

Many fractures involving the ankle joint should be operated upon.

Skeletal traction in certain oblique femoral fractures will reduce and hold the displacement.

Final opinion as to the desirability of operation versus non-operation in any fracture must rest on accumulating facts. We have today but few facts from dependable sources. We have many impressions! The best returns in adult fractures of the shaft of the femur are the more or less comparable cases from the clinics of Sherman in Pittsburgh, Campbell of Memphis, Tennessee, and Conwell in Alabama. In fracture of the femoral shaft in husky young adults all these clinics are securing splendid results: one clinic by operation, steel plate and steel screws; one clinic by anaesthesia, traction, counter traction, manipulation, reposition, and plaster of Paris splint; the other clinic by skeletal traction and plaster fixation. The treatment by operation with plate and screws seems to give a little earlier return to work than do the other methods. An average return to work of from five to six months is a satisfactory achievement following fracture of the shaft of the femur.

My contention, and this is the hopeful aspect of the matter, is that we have two very efficient methods of treatment, each requiring further use, amplification, and careful recording. As the data

accumulate, we shall get nearer and nearer to the propriety of stating at the outset, as to a certain fracture, this case should be operated upon at once; or, in this case the non-operative treatment will be satisfactory.

We may feel, I believe, that the operative treatment of fractures has come to occupy a definite and established place in general surgery. It is no longer a last resort in treatment. It is an initial method of choice. This is a very great advance in fracture treatment.

I should like to state here, and it seems to be appropriate to this subject, my conception of the qualifications of a surgeon for the operative treatment of fractures.

There are at least eight factors necessary to the qualification of a surgeon operating upon recent closed uncomplicated fractures:

1. An adequate knowledge of the patient, physically, mentally, socially, industrially.
2. An exact knowledge of the local conditions under consideration in the individual case.
3. Perfect instrumental, mechanical, and physical equipment including access to roentgen-ray apparatus.
4. An accustomed proved operative technique, delicately balanced.
5. An understanding of the sensitive nature of bone tissue, its reaction to injury, and the conditions influencing the process of repair.
6. A practical experience in the successful treatment of certain fractures by modern non-operative methods.
7. A knowledge of the various operative procedures for the immobilization of fractures.
8. An open mind in choosing the method best adapted to the case in hand.

A surgeon having the above qualifications is capable of safely treating fractures by operation.

A surgeon not having these qualifications should not employ the operative method in treating fractures.

The only underlying fundamental reason justifying the ideal operative treatment of a simple closed uncomplicated fracture is the probability of effecting the earlier return of the part to a more nearly normal function than can be secured by any other treatment.

It is established that in skilled and sane hands the operative treatment of certain recent closed

fractures is a safe procedure, with an almost negligible mortality risk, with a high percentage of restored normal function in a reasonable time.

It is also established that in skilled and sane hands the non-operative treatment of certain recent closed fractures is a safe and satisfactory method of treatment, securing a high percentage of restored normal function in a reasonable time.

It should be the aim of every surgeon of traumatism treating fractures to perfect himself in both these methods.

The one method demands as much training and skill as the other.

A complete knowledge of the advantages and the technical details of each method is essential to the highest efficiency.

A general surgical training combined with a special technical mechanical training affords the most nearly ideal preparation for the treating of fractures that is possible.

The way to the accomplishment of better treatment is in three directions:

Undergraduate instruction;

Graduate instruction;

Lay propaganda.

1. A great constructive movement is on foot to secure better under-graduate medical student instruction. It is having its effect.

2. A great movement is already under way in the United States to enlighten and sympathetically help the general practitioner in his handling of fractures. This is being ideally carried out in Boston.

3. Some appropriate day there will be an illuminating lay propaganda in fractures. Such propaganda will accomplish for fracture treatment somewhat the same result that already has been so well accomplished for cancer treatment. Such lay propaganda will provide the workman with the idea of where to find the best treatment and what he may reasonably expect from the treatment instituted in his behalf.

Perhaps the day will never come when the free choice by a workman of the physician he employs when injured will be done away with, but the corporation and the insurance companies already recognize that they are together spending in this country and in this state millions of dollars for unsatisfactory initial treatment, resulting in long disability, and in long reconstructive treatment.

Initial bad treatment is the occasion of most of the expensive reconstructive treatment.

Along with the above-mentioned movements which are really irresistible are:

1. The equally important research laboratory investigations on bone repair;
2. The focusing attention in every large and small hospital upon each fracture patient as a peculiar problem requiring skilled attention;
3. The discussion by interested surgeons, on fracture services throughout this country, of the various problems coming up in individual cases of fracture;
4. The exchange of experiences between surgeons in the friendly visiting clinics;
5. The direct and intimate association of the experienced and inexperienced men in the care of these cases, transmitting thus habits of thought and details of treatment, creating thus a climate of surgical opinion that will eventually and inevitably find its way to the remotest community.

From all these accumulated and accumulating experiences facts are being arranged in an orderly fashion, from which will eventually emerge further sane and efficient practical suggestions valuable for the general practitioner and the surgeon.

DISCUSSION ON FRACTURES

DR. HAMMOND: Mr. President, Fellows of the Rhode Island Medical Society, and guests: We have listened to a very scientific and carefully prepared paper by an authority on the subject, and he has called to our attention the necessity of operating in certain closed fractures, which I think is being recognized throughout the world as more and more a necessity. I think Dr. Ridlon's word of caution should be also taken into consideration in this discussion. There are many factors which make up the problem. Confining ourselves to the problem of fracture itself, I think that the better trained a man is mechanically the better he appreciates the problem, the better he will be able to reduce a fracture by closed methods. The chief difficulty, as I notice in seeing many cases, elementary rules in reduction and application of splints are not followed out. The joint above and below the fracture is not always splinted right. The traction and counter-traction are not adequately done. But when all that has been done, there are still cases which need an open reduction

and those should be approached, it seems to me, still with a certain amount of awe, as Dr. Scudder says. Because the bone certainly does not lend itself to surgery as do other tissues. In my experience, the open reduction of fractures results in a delayed healing more than in cases where closed methods are used. I have come to feel that in the vicinity of joints the open operation should be undertaken more readily than in the middle of the shaft, because many times these fractures in the middle of the shaft will mould themselves in place perhaps more than the X-ray will give you the idea is possible. The X-ray, it seems to me, is unwittingly leading us astray at times, and many fractures do much better than the X-ray would lead us to suppose. I have in mind fractures where the X-ray shows a very bad position in old people or in feeble individuals who would be unable to stand an open reduction and I have been surprised to see what a good functional result was obtained in those cases. But for the class of cases which Dr. Scudder has mentioned, the selective class, I feel more and more that a well thought out open reduction should be done.

DR. RIDLON of Chicago: I have had the very great pleasure and advantage of being able to call Dr. Scudder my friend for some thirty-eight years. At that time he was a young surgeon and I thought I was a very old and very eminent orthopedic surgeon. I have remained an orthopedic surgeon and he has become a general surgeon, and your chairman has not done him entire justice in his remarks. I want to tell you that he is the leading authority in the world on fractures and that all he has told you today is true so far as Dr. Scudder himself goes. Is it true for you and me? We have all of us or most of us at times found ourselves in a position where we must treat a fracture. Now we must treat the fractures as best we can. We cannot all treat the fractures as we should—as Dr. Scudder would treat them. There are poor results from non-operative treatment of fractures and there are poor results from operative treatment of fractures. You all know that. And there are good results from the non-operative treatment of some fractures and there are good results from good operative treatment of many fractures, and I think, and I know Dr. Scudder thinks, that in his hands and in my hands and in your hands some fractures can be treated very

well by non-operative methods, and I know that all fractures can be treated well by operative methods in his hands, but I know they could not all be treated well by operative methods in my hands and I think they could not in yours. I think the whole point lies in what he said: There must be the necessary operative skill; very few have it. And there must be the necessary instruments and apparatus; they are seldom to be found at the time that the fracture is to be treated. But more than all it is necessary that the surgeon who treats the fractures by any method must know how to use his instruments and his apparatus. The general surgeon knows how to use his instruments, but very few of them are so fortunate as Dr. Scudder in their early training, and very few know how to use apparatus. Very many orthopedic surgeons know how to use apparatus, but don't know how to use the instruments successfully. Those things we must bear in mind, and you must bear in mind that if you are in a position where you must take the responsibility of treating any fracture, you must treat that fracture in the best way that you personally can treat it, and you must take into account what he has told you: the peculiarities of the individual and of his surroundings, and of his occupation, and of his family, and the neighborhood, too, because you not only have to treat the fracture, but you have to treat the man, and the man's family, and the community. All that has to be taken into consideration if you are going to get the best results for that man and for you. Now I wonder if it would be desirable, as he has told you, to develop this propaganda among the people so that they may learn where and who shall treat best the fracture which has happened. I think that the general practitioner, who must treat most of the fractures, may feel rather afraid of what may happen when this propaganda has become established. He may dread the result of such propaganda, just as he now dreads the results that we have all experienced from the X-ray propaganda. Generally the first thing that the patient wants when anything happens to him, and especially to his bones or his joints, is an X-ray, whether it is likely to do him any good or not, he wants an X-ray. And after he gets through being treated he wants another X-ray to see what has been the result of the treatment: to see whether he got his \$500 worth of surgery or not. A surgeon must be

a good deal of a man if he can stand up against that X-ray after the treatment has been in his opinion as good as possible and reasonably successful. So I want to say to you who are going to treat some fractures that you ought to protect yourselves in the beginning against the X-ray propaganda that has now been established, and get it well placed in the minds of your patients that you want a straight limb with as good length as can be had, and you want a useful limb, without regard to what the X-ray picture may or may not show when you have finished the treatment and you want to collect your fee. That is the thing to aim at: a straight limb and a useful limb and not an ideal X-ray picture. Sometimes you can get it and sometimes you can't. Now, it would be very desirable if we could all know what cases should be operated on and what shouldn't. Take a case like this: A surgeon, as skillful a surgeon as I know, a general surgeon, in an automobile accident sustained a transverse fracture of the femur in the upper portion of the middle third with an overlapping of somewhat more than an inch, and eight days of traction in bed with the foot of the bed tilted up and 58 pounds of weight over the pulley, and a pretty considerable relief from pain from hypodermics of morphine, didn't budge that displacement a particle. Now what is going to be done? The man was a dear friend of mine. He had two very high class general surgeons attending him, and they wanted to leave it, because he had a straight leg and only a shortening of an inch or a little more. That isn't very bad. But I was asked to come in and I said to the general surgeons, "Gentlemen, you are clean surgeons and I have confidence in you, and I am a dirty orthopedic surgeon. Now if you will do the surgery I will do the mechanics and I will take all the responsibility," and finally they consented, at the very urgent desire of the patient, and it was done. The bones were placed end to end and they were plated and the bone ultimately united. Now why should that operation be done in that case? In most cases of a fracture in that place you and I wouldn't do it. It should be done because, in my opinion, taking the facts as I have stated them, no one could know if union would take place unless the bone ends were reasonably well replaced. It might not take place because of some soft parts between those bone ends and ultimately an operation might have

to be done. I believe in that case that an operation was absolutely the thing to do. I believe my judgment, as the results have shown, was right. On the other hand, I have treated many similar cases without an operation, being satisfied with the shortening of an inch with a straight limb. So each time the final judgment must rest, as Dr. Scudder has said, upon the facts, experience and the judgment of the man who must carry the responsibility for what is done. That is the whole business. You must do what you can do best, or turn the case over to somebody that can do better; and you must do what seems to be best for that man, or that child, or that woman, wherever it may be, under the circumstances. You must put to yourselves, in every case, when you are about to treat one of these fractures, three questions: What am I trying to do; is it worth doing; and then, am I really doing it? Most people that treat fractures don't really do it.

DR. SCUDDER: I would like to say one word in closing the discussion and that is this. The injured man, the patient, the insurance company and the industrial accident board are all asking for the maximum return of function in the shortest time. Now that demand, a triple demand, is recent, but it is a tremendous demand. There is a money value placed upon the damaged individual and it has come down to dollars and cents. In New York State alone there are 60% of malpractice suits which are due to fractures alone. In an insurance company office I saw over one hundred X-ray plates of fractures of the shaft of the femur in individuals who were in the care of that insurance company following their treatment by different surgeons throughout New England, largely about Boston. Not one of those one hundred individuals had gone back to their original jobs. I saw those plates about a year ago and there have been numbers added to that group. I visited Pittsburg, saw Sherman's cases, individuals getting back to work in almost every instance on an average of five months. Now there are these two pictures. They are honest and accurate and I believe that in a community of this sort, right here in Providence, that no constructive step of any greater pecuniary value to the profession and to the community can be taken than establishing a fracture service in a hospital in this community. I don't believe that we should have specialists in the treatment of frac-

tures, but that at the Rhode Island Hospital there should be a few individuals, upon whom the trustees of the hospital and the staff in conjunction should decide, who, in co-operation with the staff, should devote themselves to the care of these cases, should get together and handle these cases in the public ward. Let there grow up in this community an appreciation of the nicer details in the care of fractures, both by the non-operative and the operative methods.

CORRECTIVE RHINOPLASTY*

HOWARD E. BLANCHARD, M.D.

PROVIDENCE, R. I.

Facial surgery has received two great legacies from the late war; First, the vast experience gained by surgeons of different countries from thousands of combat injuries, compelling their best attention and commanding great ingenuity, and, second a remaining wealth of clinical material in Europe, for which there is no parallel in history.

The centuries elapsing from early antiquity until the outbreak of the Great War had witnessed spasmodic attempts at plastic surgery of various sorts and the amassing of much uncorrelated material and knowledge in various parts of the world. The experience gained in some fields had been frequently collected and published in many texts during the past decades. No effort to teach the basic and underlying principles, although long recognized, was ever made before last year, and it was a hopeless procedure to try and develop a technic without knowing which particular procedure to select for a given defect.

Smith and Monk, American surgeons, operated subcutaneously to remove nasal prominences in 1895 and 1898. Joseph of Vienna reported in 1898 an original subcutaneous operation performed in 1896, by which he corrected a prominent ridge and reduced the tip in one procedure. In 1899, Goodale described a subcutaneous method for the reduction of a Roman nose. He removed a portion of the septum posteriorly to the prominence, freed the nasal bones from the maxillae and lowered the bridge. Joseph described in 1902 an operation in the triangular cartilage for potato nose; in 1904, the intranasal reduction of the bony nose and the

*Read before the Rhode Island Medical Society, June 3, 1926. Illustrated with 2 reels Animated Moving Pictures. Courtesy J. Eastman Sheehan, M.D., New York.

elevation of a pendulous septum, in 1905, an operation for shortening the nose, and in 1907, the narrowing of the tip by intra nasal excisions of narrow strips. In 1915, England and France provided special centers for plastic work and much that was original, basic and vital to success was evolved, and many improvements to existing technique perfected.

It is the purpose of the comparatively new surgery of rhinoplasty to correct deformities and malformations either by removal, alternative adjustment, or additions to the support of the soft tissues present. These abnormalities are frequently hereditary and are characterized by excessive growth of bone or cartilage or both. Hypertrophy is rare at birth and usually occurs between the ages of 12 and 25. Traumatic injuries are a factor in accidents due to our modern methods of transportation, and received by workers in industrial pursuits.

The rhinomelic nose, as a rule is of congenital origin, and often many members of the same family are afflicted with mis-shapen noses, disproportionately large in comparison with their faces. Generally both bony and cartilaginous framework are involved, but either one may be affected separately. The enlargement of bone may present itself as an increased dorsal prominence, with or without a hump, or width at the bony base may be greatly exaggerated. The bridge may be wide, and smoothly rounded, or it may be pebbly, ridged and having offsets due to trauma in early life. Complete fracture of the nasal bones may leave as its heritage, the unilateral oblique nose or the bilateral obliquity.

If the cartilaginous nose is involved, either in combination with the bony nose or separately we may have a very broad tip with flaring alae, or a drooping, pointed and prominent tip with flattened alae. In both of these deformities the nostrils appear very large and broad in the former condition, and long and narrow in the latter.

Abnormal length of the nose may be due to an increased lengthening of the triangular cartilage thus lowering the columella and giving the upper lip a shortened appearance, the so-called pendulous septum; or the lateral walls and alae may be correspondingly increased in length. Displacement of the triangular or lateral cartilages may likewise twist the tip far from the middle line.

Corrective rhinoplasty has now taken its proper place in surgery along with operations for strabismus and other facial defects which detract from the personal appearance of an individual. The indications for these operations therefore are economic rather than functional in some cases, although in others the patient may also be hampered by defective nasal breathing, due either to a septal deflection or a narrowing of the vestibule, through collapse of the alae. If a submucous resection of the septum is necessary, it is performed about three weeks prior to the plastic work. It is quite necessary to do a modified septum operation in these cases in order to leave as much support as possible for the work to follow. Briefly, this means that the triangular cartilage is not excised as in the regular procedure, but after undermining the perichondrium on both sides, the cartilage is severed from the intermaxillary ridge, the vomer and the perpendicular plate of the ethmoid, leaving it attached to the nasal bones and the intercartilaginous ridge, enough bony septum is then removed to allow straightening of the bowed cartilage. It may be necessary to resort to grating of the cartilage to take out the resiliency.

If the defective breathing is caused by the small vestibule, elevation of the tip and shortening the nose will provide the required space. Too much stress cannot be laid upon the necessity of always providing enough airway.

The psychic depression, self consciousness, or supersensitiveness of these patients is a major indication for their relief. Many are the objects of ridicule, and only a few are the recipients of sympathy. They become embarrassed, sad, retiring, and often embittered toward their surroundings.

Other patients with more stable nervous systems, find themselves hindered in their professional and business activities, as well as in their personal relationships. The deformity may readily affect the choice of friends, and frequently the selection of a marriage partner.

In order to make each step of the operative procedure clear, we will take a typical case for consideration, discussing it in detail; then follow with a few brief remarks regarding another type of case and show two reels of animated movies of the reconstruction of a nose.

This patient complained of difficult nasal respiration and dripping of mucus from post. nares into

throat. Since early childhood he had been subjected to much ridicule on account of the size of his nose. After graduation from college he felt that he was unable to obtain a position on account of this misshapen organ. A submucous resection was done several weeks prior to the plastic.

The external deformity, you will observe, consisted in a gross oversized and deformed nose, affecting bony as well as cartilaginous portion. A hump of considerable proportions surmounted the bony dorsum with some irregularities of the surface. The drooping tip hung considerably below the lower borders of the alae making the dorsal profile look much like a parrot's beak. It was decided to attempt the entire correction at one operation.

Choice of Preliminary Incision

Incisions formerly used were for approach by an external route, but had the disadvantage of the possibility of a bad scar in a prominent location and are rarely used today. They were, the infraglabellar, the eyebrow, the canthal, and the horizontal across the tip of the nose. These were followed by Josephs intranasal incision, made within the vestibule, one on either side, just below and parallel to the attachment of the upper lateral cartilages to the edges of the pyriform opening. This incision obviated the drawback of an external scar and deserved a great deal of credit. It is used by some operators at the present time, but there are at least two deterrents to its use. First incision through the mucous membrane invites infection, which it is not always possible to avert, with end results not to be desired. Second, the bridge of the nose is not in line with the incision and the force applied by instruments is not in a direct line.

The columella approach is far the best, for any part of the inner nose can be reached, and with instruments passed through the incision, excision and separation can be effected from root to tip and from cheek to cheek. The columella is resistant to infection, and suturing leaves a barely discernible scar in a situation rarely visible. The operator has the choice of three incisions at this site; the columellar lift, originated by H. D. Gillies, the columellar split and the columellar retraction as perfected by Dr. Sheehan.

To proceed with the operation, the incision used was the columellar split. With a small, sharp plastic scalpel the columellar was incised through the center from tip down to but not into the deep tissues of the philtrum. The vertical edge of the septal cartilage exposed and the perichondrium elevated for a short distance on both sides of the septum.

The skin and loose tissues of the nose were now separated, first on one side, then over the dorsum and on the other side from cheek to cheek and from tip to infraglabellar region. To facilitate

the separation of the periosteum an incision was then made through it from the frontal process directly over the dorsum to the end of the bony arch and then laterally on each side down to the maxilla. A special elevator was used to raise the periosteum both over and under the bony arch. The loose tissues were retracted with hair pin retractors and all irregularities polished with a coarse rasp. The hump was next attacked with a chisel of special design and the bony portion to the extent of two-thirds removed. The rest was taken in thin shavings until the nose was levelled to the normal position. The bridge of the nose had now lost its natural rotundity which was replaced by a broad flat surface, and in order to overcome this, the nasal bones on each side were fractured by means of a chisel at their attachment to the nasal process of the superior maxilla; then crushed inward by pressure of the thumbs to the median nasal line. The cartilaginous hump was then trimmed with small scissors and pared off to the normal line with an angulated knife.



Shortening the nose and elevating the tip was done by removing a wedge shaped piece of the entire thickness of the septum, including the triangular cartilage and part of the sub-septum. The base of this section was placed beneath the dorsum just above the tip, and the apex at the anterior nasal spine. The extent of the elevation is in direct proportion to the width of this section at the base and requires accurate measurement. This shortened the septum and in order to make the lateral walls correspond, it was necessary to remove similar but smaller wedges from the upper lateral cartilages, one on each side. No sutures are needed, the dressing holding the edges in place. The gap in the septum was closed with two black silk sutures passing through the triangular cartilage above and the column below and tied one on either side of the columella. The wound edges were closed with three or four muco cutaneous sutures. All bone chips and blood clots were expressed, and the columella incision closed with horsehair sutures. The vestibule packed lightly with iodoform gauze strips, adhesive strips applied to compress the tip and hold the cartilaginous nose in place, and a cop-

per saddle splint applied over the reconstructed nose.

Regarding the use of material for the support of the nose cover, in depression or loss of the nasal bridge, as in syphilitic noses and depressed fracture, many substances have been tried, but costal cartilage stands supreme and unrivalled. The injection of a hydrocarbon, as paraffin, has had its vogue, and gave good results early, but later deplorable, and has been almost entirely given up by legitimate surgeons. Some of the evil results are dissemination and diffusion into other tissues, leakage, absorption and disintegration, pressure necrosis, abscesses, retinitis, optic neuritis and sudden blindness. Obviously, not a material to place much dependence on. Much was expected of supports of gold, silver, ivory and celluloid. The two latter lend themselves readily to shaping and insertion, but living tissues seem to be intolerant of non living bodies and are forever endeavoring to expel them. To be acceptable to living tissues, the transplanted body must be capable of living. The use of these supports, even paraffin, have seemed to have given a permanent result, but the process of expulsion is only postponed. It may begin at any time preceded by abscess formation.

Other grafts as bone from the tibia or rib and even turbinates have been experimented with. Bone undergoes canalization, fibrosis occurs and general absorption follows. A fibrotic may be left as a result of degeneration and act as a support, but is not bone.

An exception to this statement should be made, and that is that bone will not absorb if both ends are placed in contact with bone, but in nasal work this is not applicable.

The ideal graft would seem to be cartilage and bone combined, as both are present in the nose, but it has been found that there is a gradual separation at the junction, with subsequent absorption and the production of a bad deformity.

Costal cartilage is the best graft at our disposal. This is a peculiar cartilage, different from any other in the body, in that it is composed of large costal cells which are nourished by lymph and not by blood as are all other cartilages in the body, the cells seeming to exert suction on the lymph stream for their life. Aural cartilage for instance is composed of yellow elastic tissue nourished by the blood stream and if used is always absorbed. Costal cartilage can be easily handled and shaped, is resistant to infection, is held in place by the formation of strong fibrous adhesions and will remain in the tunnel made for it. This cartilage never degenerates unless pressure is applied and in using it in the nose, care must be exercised to avoid this. If after insertion, beneath the skin, a white line of ischemia is apparent, the graft should be removed and made smaller.

Experience favors the use of cartilage from the

patient's own body. It is removed as a block from the free ribs taking twice as much as is needed in case of an accident. One-half is shaped for the graft, and the other cached beneath the skin of the chest near the breast. The part used should be denuded of perichondrium to prevent curling. This graft assures the operator of permanence and durability.

The repair of the syphilitic nose is the most difficult operation in the realm of rhinoplasty. In the second degree type, there is a loss through ulceration, of part or whole of the septum, resulting in depression of the bridge and much scar tissue involving the nasal lining with subsequent contractions drawing the nose back into the face. The failures of the past can be traced to lack of provision of a lining for the nose. The modern operation demands not only in nasal work, but in other plastic procedures, a lining, a covering and a support. After every vestige of scar tissue has been trimmed from the mucous membrane, and a healthy surface remains, a stent of moulding compound is made within the nasal cavity of the size and shape of a normal nose. When hardened this is withdrawn, a large Thiersch graft taken from the thigh and wrapped around it, denuded surface outside, and then replaced within the nasal cavity prepared to receive it. The stent is held in place by a dental splint fastened to the front teeth. After about one week the graft will have taken and through the epithelialization of the denuded areas we have a new lining that will not retract.

The moulding compound is now removed and substituted by one of gutta percha. This can be taken out and cleansed daily and used for about three months as a support. The nose now has the appearance of a depressed fracture, which is remedied with a costal cartilage graft.

DISCUSSION ON CORRECTIVE RHINOPLASTY

DR. J. W. KEEFE: Ladies and Gentlemen: It was my privilege about one year ago to visit this International Clinic of Plastic Surgery in Paris and I want to state that I have great regard for Dr. Blanchard for having the ambition to leave these Rhode Island shores and spend a great deal of time and energy to perfect himself in this exploratory work. Some of the cases that I saw and others that had been operated upon and presented for examination really showed a marvellous ingenuity on the part of the operator and most extraordinary results. All of us in the past have done some plastic surgery, but compared with the plastic surgery of today it was truly in its infancy. Some may think that our friend Dr. Blanchard merely witnesses these operations from the back seat, but I want to say that I came in contact with Dr. J. Eastman Sheehan, of New York, and Dr. Gillies, of London, who is said to be the greatest expert in that line today, and Dr. Blanchard, I was pleased to see, was the first assistant at the operation. So I feel that a

man who was willing to go away to perfect himself in this line should be encouraged. And I think that every man here ought to be willing to do what he can to encourage that type of work, because I feel that Dr. Blanchard was under the tuition of the ablest man in the world. They had an unusual machine that I had never seen before. They had eight spotlights which threw a very bright light on the patient's face, and with the aid of mirrors the area of the operation was transferred upward and down across through an opening in the wall, so that students could sit in a room entirely separate from the room where the operation was taking place. The pictures were thrown on the screen so you were able to follow every step of the operation while sitting in a room outside of the operating room. And it was also an advantage on the part of the color. Instead of being a black and white picture, it was really the color of the face. I want to congratulate Dr. Blanchard on his work.

LETTER TO THE EDITOR

RHODE ISLAND MAINTAINS HER STANDARDS IN MEDICAL LICENSURE

During the past few years there have been many remarkable laws passed in a number of states governing the drugless cults. They have been written by able attorneys and have passed in legislative bodies even in fierce opposition on the part of the medical profession.

The enactment of such a law was favored recently in Rhode Island and it was endorsed by the State Medical Society. We submit herewith in part the act that was presented by the State Senator from Providence:

The passage of this act would certainly have lowered the standards of the medical profession and recognized as men of efficiency and able to treat disease those making extravagant claims.

The provisions of this bill do not end with the clothing with honor and authority the members of the long list of cults now known and giving treatment to the sick in this country, some 43 in number and for whom examining boards may be named, but it most generously provides for the tender care of any and all cultists, the names of which have not yet been determined.

How magnanimous! and this bill was brought out, advocated and strongly defended by a state medical society. It may not be necessary for a candidate to know anything of physics or biology if at some time during recent or even remote past he commenced attendance in some anti-scientific school.

Perhaps the most dangerous feature of this bill is in the fact that the Board of Education is obliged to allow any candidate passing the preliminary ex-

amination to take final examination by the cult board. This is mandatory, and the Board of Education is required to *request* and *act* upon the recommendations made by the cult boards.

It is a well known fact that some state boards of medical licensure are at the present time embarrassed by the fact that they must give all applicants an examination. It is due to this requirement that the Massachusetts Board is compelled to give examinations to men graduating from the schools of lowest grade. Some of these graduates after taking quiz courses are able to pass the test, and in only five years, 1920-1924, according to Waite, that state, with its efficient board of registration, licensed 47 graduates of St. Louis College of Physicians and Surgeons, and Colorado, facing the same embarrassment, registered 56 more during that time from the same school.

Fortunately this is not the case with the boards in most states. Because of the right to deny applicants the privilege of taking examination, graduates from poor or unknown schools of Eastern Asia and elsewhere are prevented from practicing medicine among us. It can, therefore, be seen and readily understood that this mandatory requirement that all candidates shall be allowed to take the second examination is dangerous. Any state adopting such a law as this will have a goodly number of "healing artists" who have no chance in most states.

The state of Rhode Island has maintained, in common with many others, very high standards for those whose duty it is to give treatment to the sick. After 11 years of unceasing effort on the part of the State Medical Society, it was successful in having the duty of licensing physicians placed in 1895 with the State Board of Health. Few states since 1908 have maintained higher standards than Rhode Island, and none since 1917, when the interne year service was required.

Had this act passed, these standards so carefully considered and well enforced would have been swept away. In view of this fact, the *promotion of this bill was very generally resented*. Those responsible for it *made repeated efforts to have someone else rewrite and sponsor it*,¹ but without success. It appeared to belong properly to its authors, the knowledge of which is widespread in the medical profession and its memory will be abiding.

Authority given by Section 5 is sufficient reason for condemning the bill. Why consider for a moment that faddists, even with high school attainments, who disregard the causes of disease firmly established by scientific research, deny the existence of the germ theory and ridicule the facts accepted and proven by highly trained scientists the world over. Why should men and women holding anti-scientific notions be allowed to sign death

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EDITORIALS

A NON-PARTISAN ISSUE

In the coming elections this fall each voter will be asked to vote upon the question of a bond issue of \$1,125,000 for State Institutions. This is a non-partisan, non-sectarian proposition and one which should appeal especially to the medical profession. There is probably no group of people going about the community, who can favorably influence public opinion upon such a humanitarian objective, as the doctor. Remember mother and daughter vote, too.

These institutions are largely presided over by medical men of the state society and represent hospitals, either in a curative or prophylactic sense. Patients are flocking to them and the management being vested in the state, your personal individual state, it is not possible to refuse admittance. You do not want your state to crowd and ill care for its sick. The world has gone ahead too fast for the term "pauper" and the word is all but lost. The state, your state, is maintaining large hospitals for its sick and the people are asked to supply funds to adequately care for them.

The State Infirmary is rapidly emerging from an almshouse, where misery was the bedfellow of misfortune—and misfortune is no respecter of persons—to a modern hospital where there should be wards as adequate in size and equipment as any hospital can afford. A hospital in every sense of the word, not an almshouse, not a poor farm, not a pauper asylum. Do not argue with persons who fear that such an institution may be made too attractive. Just remind them that every citizen of the commonwealth, regardless of his present social or financial standing, is a potential patient in this particular institution.

The State Hospital for Mental Diseases needs buildings badly. Here is an institution devoted to the mentally sick, which in itself is about three times as large as our largest hospital under private corporate management. This hospital has a large corps of medical men and is very badly in need of more housing space. Is there any reason why an institution for the sick, of which every voter is a part owner, should be compelled to have its patients sleep on the floor? Why should the state tolerate, in caring for its own, a condition which in a private institution would not be tolerated? Of course there is every reason why it should not.

It is hard to say whether Exeter School is more in need of buildings than any of the other institutions, but to say that it is acutely in need of funds is only a mild statement of facts. The work of this school from a medical viewpoint may be called largely prophylactic, but none the less medical. It is not today, and never has been given funds enough to function more than about one-third. It has and does care for a residue of hopelessly feeble minded individuals, but the other 60% of its duty has never been exercised. This other two-thirds function, from an economic standpoint more important than the first, is the temporary custody and study of the great group of morons; that class of society that is presenting the problems of illegitimacy, crime and racial degeneration. Headed as it is, by a skillful physician of the best type, this institution should have its capacity doubled at once.

The problems of these three institutions should appeal directly to the medical profession, and unless as a physician he can refute these arguments, every doctor in the state should make it a part of

his professional duty in the next month to urge the passage of the proposed bond issue.

CLINICAL CONFERENCES

The Committee on Clinical Conferences for the ensuing year as sponsored by the State Medical Society, called a meeting of the physicians chosen to give the clinics. The purpose of this meeting was to explain this year's program which differs in some respects from that of last year. The committee had at hand data which was not available last year and have made good use of it in arranging the present schedule. Those clinics which were well received and appealed to physicians last year have been retained. Clinics which failed to arouse interest have been dropped. The committee feels that this feature is of importance. Another change is the omission of the winter months from the schedule. Last year, during the particularly busy time of the winter, many physicians were unable to attend the meetings. Under the new plan, conferences will be held during the fall and spring months, thus removing one of the chief obstacles to attendance. Another feature, of less importance, is that no fee will be charged for those who matriculated last year, and only a nominal one for new matriculants. The conferences were regarded sufficiently successful last year to warrant their repetition. They should be more valuable to the medical profession this year.

INFLUENZA

Foremost among the pressing medical problems of the day stands the "last of the great plagues"—influenza—a constant threat against life, liberty and the pursuit of happiness on the part of mankind. Not only is it important because of the mortality and morbidity resulting from its ravages at times when it has acquired such a high degree of virulence and contagiousness as to become pandemic; but at other times when, in milder mood, it attacks with decreased vigor and causes to each victim but a few days of real illness, it can still be counted as a major problem. In "off years" so to speak—when the disease cannot be said to be even mildly epidemic—it still ranks among the main

causes of loss of time and efficiency. "But," one may ask, "what is influenza?" Text-book descriptions and the common experience of practitioners make it easy of recognition when typical, and especially when prevalent in epidemic form. Unfortunately, however, no pathognomonic sign or symptom and no diagnostic test exists. What then of the mild "grippe," so called, occurring sporadically, and clinically identical with the milder cases of epidemic "flu"? What of the gastro-intestinal and other forms often called "grippe"? Are they, or are they not, influenza?

The answer to these questions, cannot be made at present. With the etiological factor undetermined and with the diagnosis a mere clinical guess, it is no wonder that but little accurate information as to the prevalence and spread of the disease is obtainable. Sporadic "grippe"—mild though it may seem—superlatively important as it surely is—is a very will-o'-the-wisp to the investigator. It cannot be studied in large hospitals as cases are seldom admitted. In private practice it is too often neglected as a mild self-limited affair requiring no real treatment and amenable to none. "Simply a touch of grippe," we say, which is beneath the notice of the trained clinician—chiefly, it must be admitted, because he knows next to nothing about it, and can do but little for it.

But who is to attack this all important problem? The answer is clear. There is but one type of man available—the family physician. He is the man who sees the cases—the only man who can attack the problem. If practitioners generally would really take up the careful study of this much despised but all important disease; if they would make careful clinical descriptions and records of their cases with studies of the occurrence and variations of the disease in different seasons and different years the first step would be made. Better still if some group of practitioners such as, for example, the members of the Rhode Island Medical Society should by mutual agreement make a concerted attack on the disease as seen in the private practice of each, the result could not fail to be of great value. This could be done by the appointment of an influenza committee to whom the members of the society could report their cases and who could thus compile accurate data covering virtually the whole state. If this work were backed by a team of laboratory experts whose duty should be to car-

ry on bacteriological and blood examinations on those patients whom the family practitioners would indicate as appropriate for study, the value of the whole investigation would be greatly enhanced. Properly carried out, an investigation of this nature by the members of the Medical Society would constitute a real achievement.

LETTER TO THE EDITOR

(Continued from page 165)

certificates or "any certificate or document which physicians are now authorized to sign"? What complications would develop if the State Registrar of Vital Statistics was compelled to accept and officially record deaths as due to pinched nerves, loose segments of the spine, or some other equally ridiculous cause. In all probability such records would prevent Rhode Island from continuing to hold its time honored place in the registration area of the United States.

The passage of this bill was urged very strongly by those who have been denied, for good and sufficient reasons, the privilege of taking examination before the State Board of Health, by many violators of the Medical Practice Act and by a few medical men. The motive of those who opposed the bill was criticized severely in a part of the public press, by propagandists who for one reason or another sought its passage, and it was by some no doubt misunderstood.

The bill aroused much interest during most of the legislative session. It passed the Senate, but opposition developed sufficiently strong to hold it in the Judiciary Committee of the House and prevent its passage.

It is gratifying to those who worked hard even under the above mentioned conditions that they were successful in the prevention of the passage of this remarkable and dangerous bill and that they have the hearty approval¹ of most physicians in the state.

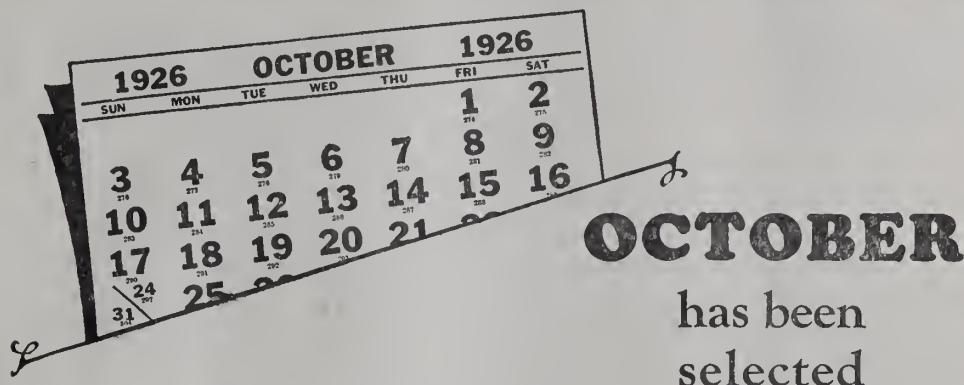
B. U. RICHARDS, M.D.

¹[THE RHODE ISLAND MEDICAL JOURNAL stands always ready to publish any letters that may bear upon medical affairs or policies of public welfare that interested persons choose to submit.

As a rule, we do not presume to repudiate the tenets set forth in any communication, nor does the appearance of such letters in these columns constitute an endorsement of sentiment expressed therein—this is the neutral ground of forensic liberty.

There are, however, some portions of the above letter, notably those that we have taken the liberty to italicize, that are sufficiently outstanding to inspire skepticism and indeed might invite the question as to whether the zeal of the writer has carried him into a realm beyond that of substantial exactitude.—ED.]

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ORIGINAL ARTICLES

THE PSYCHIATRIC VIEWPOINT*

ARTHUR H. HARRINGTON, M.D.

HOWARD, R. I.

In order to approach the psychiatric viewpoint of to-day, it is necessary as one step to make a statement as to the place of the word "insane." This word has been used loosely for a long time to designate patients who are found largely in hospitals for the mentally-ill.

These hospitals were established for the custodial care of persons taken from the community, whose behaviour had set them apart from other people and in order also that the community might be protected from them.

If a definition of the word "insane" has been attempted some such expression as that the word "insane" is used to describe a person of unsound mind; is the one frequently given, thus substituting one term for another but not giving any additional information.

The word "insane" is simply a label which the law and which society have applied to certain types of behaviour. Into this legal and social conception the medical aspect of the case does not enter at all. No more conception of the actual condition is given than when we say a person has an abdominal pain. In such instance he might be suffering from an attack of indigestion, he might be passing a gall stone or he might have an acute appendix and so on.

Again a person might entertain any variety of fantastic delusions, but if he kept them to himself or did not put them into operation to an extent that brought him in conflict with society, he might still pass as "sane"; he might escape this legal and social label, although the mental condition might be just as serious or even more so than that of the person who had been adjudged "insane" and he might need medical care just as much or even more.

*Read before the quarterly meeting of the Rhode Island Medical Society, held at the State Hospital for Mental Diseases, Howard, R. I., Sept. 2d, 1926.

Advanced medicine has discarded this criterion of behaviour as the one only necessary factor to be taken into account in determining whether a person should receive the special provision which a hospital for mental diseases can furnish, but to-day looks within to discover the presence of those mental mechanisms which predicate mental deviation to the extent that medical attention is required. We are constantly meeting in practice instances in which the mental conflict is carried on within, with little or no outward manifestations, but in the absence of these outward signs the strictly legal and even the social viewpoint is not satisfied and so the person continues to lead a life in which he can not respond adequately to reality. The victim does not know where to turn for relief or advice. Sometimes even if he comprehends, or even vaguely so, his condition and makes it known to his friends, if he displays no unusual behaviour, they are very apt to turn the matter aside with some remark that is meant to be reassuring. On the other hand it happens in our experience, not once, but several times every year, that some patient is committed to this Hospital who in the opinion of some people is not, to use the common expression, "crazy" and the cry goes up that he has been "railroaded" to the institution. I want to state here that in all my experience I have never seen a case in which this view has been expressed about the commitment of any patient, but what there has been some situation present which offered a problem that could not be solved by any ordinary means at hand. But the situation had to be met in some authoritative way, something had to be done and done at once. The only agency in existence which had the organization and personnel to cope with the situation was the State Hospital. The only instance I have ever personally known at successful connivance was where the committed person himself entered into the conspiracy. A group of newspaper men conceived the idea of getting one of their members committed to a hospital to see if it could be done. It was done, but what did the man have to do? He had to go out on the

street and attract so much attention by strange conduct that he was apprehended by the police. At the station he still maintained his antics and was committed. The situation created was that the man made of himself a malingerer. All malingerers have to be given the benefit of the doubt and treated accordingly until the malingering can be exposed, and so it was in this instance and that was all it amounted to, except that the machinery of the Court had to be put in motion. There was the incidental expense, and valuable time of physicians was consumed.

The terms "insane" and "mental disease" are not synonymous. The former is not sufficiently broad to include all conditions but unfortunately it must survive in forensic medicine until such time as the law and medicine occupy common ground on these questions.

Society however is making progress in accepting the medical interpretation that the so-called "insanity" is a disease.

Psychiatry to-day employs the terms "mental disease," "psychosis," "psychoneurosis" and "neurosis" to designate all those heterogeneous conditions which come within this branch of medicine. But let us for the moment leave out all of these terms and see what we mean by them. We really mean men, women and children in difficulties with reality in relation to which their personality reactions are inadequate. This is the modern conception of the so-called insane and of the psychoses and all allied conditions.

Historically the treatment which has been accorded the mentally-ill, while they have been subjected to the extreme of cruelty, cruelty has not as a rule been the motive, but ignorance and fear have been the causes in the main. The philanthropic period in the care of the mentally ill began early in the last century, but even years after that movement arose, there were instances of what amounted to extreme cruelty in Rhode Island, as well as elsewhere, the records of which are authentic but well nigh unbelievable. In one instance in this State a young man who had set fire to a building was not prosecuted because it was evident that his mind was disordered. He was found locked in a room in an out-building, some six or eight feet square. The room was as filthy as could be imagined. The bed was completely rotten. This

man had been kept in this room for 33 years, nearly 30 of which he had been chained by the leg. Such instances no longer prevail but there are still lingering evidences of ignorance and fear, and mediaeval conceptions of mental disease are to be found here and there.

To instill into the lay mind everywhere the conception of mental disease as a sickness the result of natural causes is a teaching which is to go hand in hand with every psychiatric and mental hygiene agency.

The philanthropic period from which we are all advancing at the present time into the scientific period has slowly but surely brought about better care for the mentally-ill. There has resulted better housing; increase in medical staffs, though still inadequate; the individual study of the patient and all of his antecedents, heredity, environment, his total personality, as well as his present psychosis; the introduction of training schools for nurses; the recognition of the value of occupational therapy; the adoption of social service; the correlation of clinical and laboratory findings; hydrotherapy; psychotherapy; surgery and the out-patient clinic. All of these and other measures have a bearing not only upon the net gain for the patient individually, but are enlarging the functions of the Hospital and its usefulness to the community. All of these during the last quarter century especially, have been features by which we have progressed up to the present time. In regard to the social attitude toward mental disease, apart from the hospital itself and its broadening function, there is a gratifying gain, and that is among the intelligent people of this State there is a growing civic consciousness towards the mentally-ill and what the State is doing for them. This is evidenced in many directions by interest in mental hygiene and in the avidity with which its literature is read and in the wide interest taken by our citizens and welfare workers in public lectures relating to the mental hygiene of the child, the adolescent and the adult.

But notwithstanding all that has been done there is something more to be added. The fact is that in the past we have not understood the patient, although the patient has always been crying out to be understood. We have not understood his language and this must be learned by us or we shall remain in a state of fixation.

I believe that we are now at the beginning of an era which is most encouraging. The great contribution to the understanding of the patient and to psychiatry which will make it a science lies in the grasping of certain principles which can be no other than fundamental for the reason that they are biological.

Psychiatry until comparatively recently has been in the descriptive stage of development. It reached its climax in the Kraepelin school. We have long been satisfied with minutely descriptive psychiatry. That is psychiatry from the point of view of the course and outcome of the disease. This method of study has become a routine and a necessary part of the practice of the psychiatrist. But if we went no farther we should be left in a static position, because this method does not take into account all of the factors.

The Krapelin method, entirely necessary, teaches us to observe minutely what the patient does and what he says, but it does not tell us why he does it, nor why he says it. Every act of the patient and every word he utters has a cause behind it. The psychiatry of to-day teaches that the physician must use all methods available to interpret all these outward signs and not be satisfied with the mere disguises as expressed in behaviour.

Let me illustrate. A patient about 50 years of age, married and father of a family, was admitted in a depressed state. One morning, not long after admission, he suddenly ran head on into a heavy wire glass panel, producing an extensive laceration of the scalp. This act came out of a clear sky, for he had never manifested any behaviour of the kind before. Subsequently in an interview he was led to disclose the reason for his act. He called attention to his stature, (he was five feet one inch tall), also to his genitalia which were of the juvenile type. He revealed that these physical conditions had been a great source of distress to him ever since the time when he found he could not hope to increase his stature. At the age of about 50 this well-nigh life-long inferiority complex came to a climax in a well defined depression. He revealed furthermore that on every bathing day, when he had to disrobe before other patients to take his shower-bath, he had undergone indescribable mental torture because his body was to be exposed before others. On the day of the act in question this state of mind had become so intense that he

determined to avoid the bath by the conduct described. If conditions had favored it he might readily in this state of mind have accomplished self-destruction by some means. Contemplating that his bath was to follow on the morrow he might even have attempted self-destruction by some method on the night before and perhaps have succeeded. To deal with such a problem as the act this patient performed, the procedure might have been to seclude him in a room or restrain him in such a way that he could do himself no harm and believe that the best possible was being done, but when the cause of his act was revealed, when his complex was disclosed, the whole situation became perfectly clear and the solution of the problem was not difficult. Incidentally to complete this account, psychotherapy, which in this instance consisted in sitting down and talking with him and pointing out to him characters of note in history who were not only of small stature, but handicapped in various ways physically, and assuring him that probably not a single patient would take note of his size, he gradually overcame his dread of the bath, and went through it with the other patients; his depression disappeared in a short time and he was sent home apparently entirely relieved of his depression and probably his sense of an inferiority complex less imperative.

The point I wish to emphasize here is that the ideal in psychiatric practice must be to know the patient in his totality and seek to discover what the inward conflict is. Dr. William A. White speaks of this as the "Ideal of Knowledge" and is the spirit which should pervade a hospital, physicians and nurses.

The efflorescence of a psychosis, that is behaviour, has in the past seemed the most obvious point of attack, but we are learning that it is of relative unimportance as compared with the discovery of the conflict and its factors.

This brings us to one of the foundation principles of psychiatry and that is that we must grasp the biological view of the "Unity of the Organism." We must do away with the false distinction between mind and body. We must come to see that the personality make-up is the total integration of the individual. To make up this totality there enter all the physico-chemical processes, such as metabolism; the endocrine system; the negative nervous system, all of these not being

under volitional control, but nevertheless intimately related to what goes on in the psyche. Then there are the sensory-motor reactions, which are in a large degree reflex. Then there exist all the antecedents of the individual, heredity, environment, experience, race-consciousness. All of these together with instincts, impulses, emotions, and lastly whatever degree of reasoning power is possessed make up at any given moment the totality of the individual at his psychological level. The present psyche of the individual is thus a biological result. It has been preparing through millions of years of "trial and error." The psyche has not been put into the body but is the last product of a biological process. (The term psyche as used here is synonymous with mind.)

The psychiatry of to-day accepts the view of dynamic psychology that the mind is an organized principle in evolution, with a structure just as real as that of the body. It is a distinctive working entity, but differing from the material body in that it possesses the maximum of plasticity. It is an instrument, which can be used in the most utilitarian way. It was by means of this instrument that you drove your automobile to this Hospital to-day. It is the biologically organized principle by which man is conquering the planet on which he lives.

Within recent years the so-called new psychology, or in other words dynamic psychology, has been disclosing the mechanism which explains human conduct not only in the normal but in the abnormal.

The instincts and emotions with their intimate relations to the oldest part of the nervous system, the vegetative, are the first manifestations of the psyche, the ideas or intellect came later. Daily life shows how difficult it is to free the intellect from the influence of the feelings.

Now the important conclusion to which all this leads to is, that the psychosis is not a thing of the moment, though it may appear so, but it is the sum total of all the previous experiences which relate the patient to the present situation, and of much of this past experiences he may be quite unconscious.

Let me illustrate. A woman of 36, married and having three children, was committed to this Hospital. Within two or three days she had become acutely disturbed and was destructive of house-

hold furniture, crockery and so on. In obtaining her previous history it was learned that at the age of 16 she had formed an attachment for a boy of the same age. As they approached the marriageable age consent was asked of the girl's parents to marry but they emphatically refused to grant this request and they finally gave each other up. Later she married her present husband. Several years elapsed. Just before the outbreak of the psychotic symptom, for which she was brought to the Hospital, a younger sister became engaged to a brother of her girlhood sweetheart. Unlike her own case, her parents approved of this match. Her reaction to this attitude of her parents towards her sister in contrast with their refusal to allow her to marry her early sweetheart was that she was incensed, she became bitter. At the same time the engagement of her sister brought on associations between the two families and there was the social contact again with her early lover. There was a conscious revival of her early emotions and she could not deal with them adequately. Looking back, her early disappointment was lived over. There was a state of mind of mingled resentment, an unjust fate, bitter disappointment, all resulted in a rebellion. Between these states of mind and reality arose a conflict. The instincts and the emotions rather than the intellect won in this case and an acute mental disturbance resulted.

At the Hospital this patient denied that she had a husband. She denied that she had any children. She refused to see her husband when he came to visit her, "because she had no husband."

At length her story, as I have related it, though not in her language, was given by herself, and verified by us as far as the environmental circumstances were concerned. She came to see that her revival of early associations had been the cause of her disturbance and she came back to reality rather promptly and made an apparent recovery. Her insight into her disturbance and its cause was sufficient apparently to bring about her early improvement, but the real mechanism in this instance, I am convinced, was the unconscious wish that she might have her first love, which caused her entire negation of reality as related to her wifehood and her motherhood. This case illustrates several phases, but the one to which attention is called in this connection, is that a psychosis is very rarely of sudden onset, though outward manifestations

may make it appear so, but the factors of its genesis may have existed for long periods and are often traced to early years, and they must be sought for in the totality of the individual.

Advanced psychiatry, therefore, accepts the tenet of the "Unity of the Organism" and it regards the individual at a given moment as a total integration of all his physical, psychological and social antecedents.

We can here take up briefly only one other foundation principle and that is that a psychosis is to be viewed as the evidence of the meeting of opposing forces, which furnish the material out of which comes a conflict. Let us turn for a moment to two or three of the systems which we have already mentioned which enter into the organism and consider their functions. For instance, the sympathetic nervous system increases cardiac action, the autonomic inhibits it; the autonomic increases the secretion of sweat, the sympathetic inhibits it, and so on with other functions. The endocrine glands have their part in this back and forth play. In the sensory-motor extension of the central nervous system sensation is met by the reflex. This same back and forth play is carried on in the psyche between the instincts and emotions on the one hand and the ideas or intellectual aspect of the psyche on the other hand. All forward movements meet resistance and it is by the conflict that we rise or fall. The word conflict is not to be taken in any reproachful sense. When we come to conflict in the psyche between the individual and reality is it the urge to go forward to meet reality, that is to conquer or is it the drag-back? Instead of going straight forward, is some way out by some side line going to be found? Or is there to be an actual regression? The side line means a compromise, a compensation. The regression means that it is easier to create a world of one's own and live in it than to overcome the resistance which progress requires. One man may desire wealth and he sets himself to acquire it by constructive means. Another man, like the patient who has lived in this Hospital for over 30 years, who believes himself the possessor of millions of dollars and the owner of this Institution, turns from the struggle by creating a false world of his own. The drag-back may take a patient all the way along the path of regression even to what we call "Infantilism"; like the patient, an educated

person, who up to the age of 35 had followed an intellectual pursuit. At this time a psychosis developed. In this case her regression has proceeded so far that she lies in bed with her thighs flexed on her chest, hour by hour she will suck the corner of her sheet or pillow case, if placed upon the floor she crawls about, though she can straighten her limbs and stand upon her feet when she is raised. She utters meaningless monosyllabic sounds like a child, but on occasion she can come back enough to use a coherent phrase. Thus there are all degrees of retreat from reality, from compensation to extreme degrees of regression. This back and forth play is a principle which exists in all nature and in the physical and psychic organization of the individual, and the lesson to be learned is that when dealing with a psychosis look for the conflict, find the terms of this conflict. If we can make this discovery we shall have something more than mere description, we will at least understand why an individual is inadequate to a situation and our line of attack is thus clearly marked out and if intelligently made may in very many cases bring about a satisfactory termination of the conflict.

Now it is not possible with all psychotic patients to find out their conflict, because they are not sufficiently cooperative. In some instances, the conflict can be discovered especially in the early cases and in the psychoneuroses, but in some instances attention to the total reactions of the patient reveal the mechanisms which are at work.

Therefore the psychiatric viewpoint regards the mind as a biological product. It takes into account the unity of the organism and it considers the dynamics of this unity or the unity in a state of functional activity. It is upon these principles that the study and treatment of the psychoses should rest. That is easy to say but it is not so easy to carry out for the reason that it means a far greater amount of individual work than can be accomplished in a large hospital with the usual number of physicians upon the medical staff, particularly if the hospital is already overburdened with numbers. The fact is that we do not have in Rhode Island all of the agencies necessary to deal with all types of mental cases. Many patients are sent to this hospital who would have been more appropriately placed in a psychopathic hospital, using that title with the full understanding of what a

psychopathic hospital should be and what function it should perform for the State. The limits of this paper do not permit going into those details, but the question which we can ask ourselves is not "Should we have a Psychopathic Hospital?" but "Why have we not a Psychopathic Hospital?" It is apparent however that the intelligent public are coming to comprehend the need of a psychopathic hospital. I want to say that I am convinced that already in more than one quarter there is the conviction of the need of a psychopathic hospital in this State. This has even been heard from more than one quarter in this State, outside of Providence.

A psychopathic hospital centrally located in a community of approximately 700,000 people, constructed, equipped, organized and administered on comprehensive lines can fill a place which no other agency can approach. In its activities a psychopathic hospital can cover certain phases in the field of mental hygiene and psychiatry which the State Hospital is in no position to deal with at all or they are phases which the state hospital cannot handle except at a disadvantage.

The State Hospital for Mental Diseases has three chief functions. The first is to give to the patients coming under its care every therapeutic effort indicated by their mental and physical condition; the second is to return as many of them as possible to civic life; the third is, through certain of the hospital personnel, to extend its services beyond the walls of the hospital into the community.

Between the two extremes of mental health and frank mental disease there is a field occupied by a large group of men, women and children, who are the possessors of trends which are the potential antecedents of mental disease or which already may have led some of them dangerously near the border line of mental breakdown. In this group are a vast variety of departures from mental health causing distress, suffering and anguish to the unfortunates, but which they often bear in silence. These persons may have fears, compulsions, imperative ideas, which subject them to a sort of mental slavery. The realities of life may produce mental states which throw individuals out of normal mental adjustment. The failure to meet fairly and squarely the perplexities of life may call out disturbances of orderly methods of reason-

ing and give rise to distorted views of life. A psychopathic hospital would serve these and fill other needs of public welfare.

The State of Rhode Island in its area and population furnishes an advantageous unit for reaping the complete advantages of a psychopathic hospital. Such an institution in Rhode Island would occupy a strategic position from mental health to mental disease and would do away with large numbers of commitments to the State Hospital for Mental Diseases. The time is right for the Psychopathic Hospital idea to be grasped by all persons interested in public welfare and public health measures.

NOTE: In preparing this paper the following works have been consulted: "Diseases of the Nervous System," Jelliffe and White; "Principles of Mental Hygiene," White; "Foundations of Psychiatry," White.

REPORT OF A CASE OF PHLEGMON OF THE UPPER LIP*

By EDWARD G. MELVIN, M.D.

PROVIDENCE, R. I.

A. M., female. Age 20. Single.

Family History. Father and mother living. Father is well and active, mother is well but very obese. One sister and one brother living and in good health. There is no history of cancer, insanity, diabetes or T. B. in the family.

Past History. Has had measles and chicken pox during childhood. Does not remember of ever having any other sickness.

Present Illness. Pains and aches all over her body, sore throat. Also has a "boil" on the back of neck which has been present for about one week. It has been very painful and is now discharging yellow pus. There is also a small pimple at the nasal base in her left nostril.

Examination. Temp. 100. Pulse 100. Resp. 30.

General physical examination was negative except for lagrippe. Pains and local examination which was as follows: there was a furuncle on the nape of the neck which had been poulticed for about one week and was now discharging a thick yellow pus. There was also a small pustule just inside her left nostril at the base. This was quite sore and tender with some swelling. I advised

*Read before the Providence Medical Association June 7th, 1926.

incision, but patient objected, and during the night she applied hot applications.

Treatment. First I ordered Dover powders and hot drinks for the grippe, and next day cleaned up the furuncle and applied sterile dressing. She refused to have the pustule at nasal base incised because of the resulting scar. The next day there was redness and swelling about left nostril with considerable tenderness. Temp. 99.5. Patient finally allowed me to make a small incision, and free pus was expressed and wet dressings were applied all that night. The next day she had a pustule in her right nostril, and this was also opened and more pus expressed. Next day, the fourth after the original pustule was incised, she began to get oedema of the upper lip. Temp. 101.5. The same afternoon the temperature was 102 and the lip swollen and hard. I advised patient about the condition of lip, and told her that she should be in the hospital and lip opened wide to allow drainage. Because of the resulting scar, this was refused. The next day the lip was swollen to the size of a lemon, both cheeks and eye-lids were swollen and eyes partly closed. There was a small hole in her upper lip discharging a bloody pus. On probing this opening, I found that it extended through the tissue and mucus membrane of the lip. The inner surface of the lip was studded with small pustules and beginning to slough. The skin surface was also studded with small pus pockets. The temperature at this time was 103, pulse 120. Patient was taken to hospital that night, five days after initial pustule had been opened.

Operation. Morning of operation the temperature was 106.2. Ether anesthesia. Incision was made beginning at left angle of mouth extending up to base of nose and down to right angle of mouth, V-shaped. Lip was opened wide, and same looked porky and compleated infiltrated. Wound was packed with iodoform and patient returned to bed.

Post Operative Treatment. Dressing done, packing removed. Wound chessy in character. Repacked with iodoform and continuous wet dressings applied. Entire face swollen considerable. Right eye closed, left partly closed. Temp. 104. Fluids forced by rectum. Patient was given an 8-minute application of deep X-Ray. Dressing done that night following X-Ray and pus was

beginning to soften up and considerable was picked with forceps from the wound.

March 28 Lip opened wide. Packed. Face badly swollen. Wet dressings.

March 29 Lip hard. Repacked. Deep X-Ray for 8 minutes.

March 30 Beginning to soften. Face badly swollen. Temp. 102.

March 31 Lip draining profusely. Right eye closed tight, left partly. Patient restless. Getting brandy every 2 hours. Wet dressings.

April 1 Face still swollen. Pain in right upper arm. Small lump in left lower arm below elbow very tender. Temp. 102. Ice bags to both arms. Wet dressings to face.

April 2 Cough, pain in left chest. Left forearm very painful. Right eye badly swollen and closed tight. Argyrole and boric acid to both eyes.

April 3 Comfortable. Lip draining. Face and eyes remain about same.

April 4 Hot $MgSO_4$ to right eye-lid. Left eye opened wide. Lip still discharging thick pus. Pain in both arms still present, more marked in left arm.

April 5 Temp. 101. Right eye looks better. Left eye opened. More swelling to left arm, redness and quite painful.

April 6 Temp. 100. Lip clean and beginning to granulate in. Adhesive plaster applied to lip and same pulled up so that cut edges are in close proximity. Right eye swollen but is open. There is a localized area in left cheek soft and fluctuating. Patient sleeps well, eats well and is quite comfortable.

April 7 Temp. 100. Improving.

April 8 Temp. 100. Right side of face looking good, left side swollen and painful. Left arm very painful. Lip granulating in. Edges held together by adhesive.

April 9 Temp. 101. Left arm incised and about 2 ounces of thick yellow pus obtained, rubber drain inserted. Localized area on left cheek also opened and about 1 ounce of pus obtained. Culture sent to laboratory. Gas oxygen used.

- April 10 Temp. 99. Right side of face practically normal. Swelling on left side subsiding and wound draining. Swelling of lip practically gone. Wound held together by adhesive. Swelling and tenderness of arm gone. Patient complains of pains in left chest, but examination proves nothing.
- April 11 Improving.
- April 12 Temp. 100. Small area under left eye incised and free pus obtained.
- April 13 Temp. 98. Lip healing rapidly. Swelling of the face practically all gone except for small area on left cheek. Patient out of bed.
- April 13 to 17 Patient showed remarkable improvement.
- April 18 Discharged to her home.
- April 28 Patient has made a complete recovery. Face has assumed the normal contour and her lip is entirely healed.
- ORGANISM—Staph. Aureas.

BLOOD TRANSFUSION*

BY DR. WILLIAM P. DAVIS
PROVIDENCE, R. I.

With the advent of the sodium citrate method of blood transfusion, the series of papers forthcoming have contained for large part a question of advantages or disadvantages of the sodium citrate blood transfusion.

According to Lewisohn, the only direct form of transfusion is the vessel anastomosis, either by direct suture or by cannula. This method involves a technique which is difficultly performed, vessels are injured and at times destroyed for further use and the amount of blood transfused is questionable, a dangerous feature to both donor and recipient.

The indirect methods consist of: 1. Cannula method by Bernheim; 2. Syringe cannula method (by Lindeman); 3. Paraffinized tubes (Kimpton and Brown, Vincent and Perry); 4. Stop-cock method, (Unger, Miller, Bernheim); 5. Citrate method.

Sodium citrate method was reported for the first time by three investigators almost simultaneously, the first by Hustin, (*Journal Medical de Bruxellas*, 1914,) soon after by Lewisohn, (*Medical Record* January 1915.) followed by Richard Weil, (*Jama*, January 30, 1915.) For years an anti-coagulant had been searched for, with the use of sodium phosphate and sodium bi-carbonate, but amounts of these substances necessary for anti-coagulation produced toxic symptoms. Sodium citrate had been used successfully in laboratory work in one percent solution as an anti-coagulant, but experimentally resulted in death to the recipient. It was found, however, that a much smaller percentage (0.15%) sufficed to prevent coagulation and this amount was harmless, the maximum dose for an adult being 5 gms.

Max Lederer in August, 1923, reported in the *Journal of Surg. Gyn. and Obst.* 80 cases of transfusion done at the Jewish Hospital, Brooklyn, of which 40 were by citrate and 40 by unmodified blood methods.

The reaction occurring was generally a sharp rise in temperature with or without subjective symptoms. Severe reactions generally occurring within 45 minutes and constituting a chill with chattering of teeth, cyanosis, and rapid pulse, followed by temperature of 102 to 103. Milder reactions of headaches, palpitation, nausea, or vomiting were recorded, all reactions were used. The number of citrate transfusions done were 47, quantity of blood from 200 to 500 c.c. transfused and 49½% reaction. With unmodified blood transfusions of from 200 to 1020 c.c. reactions were negative. He states the method of election for performance of transfusion should be compatible with the experience of the operator and the environment. General principle is that the blood introduced into the recipient should closely approximate blood in its natural condition.

Kimpton states that in certain cases citrate defeats its own purpose, that reactions are more common, and massive transfusion are dangerous because the total quantity of citrate may be large.

Osborne A. Brines (*Arch. of Surg.* 1923 September) believes that the coagulation of blood cannot be retarded, without alteration of some of its chemical and biological properties. Experimentally, sodium citrate, 1. destroys blood platelets which apparently play an important role in coagu-

*Read before the Rhode Island Medical Society, March 4, 1926.

lation of blood, the method thus contraindicated when wanted, for its hemostatic effect. 2. Alters the blood cells, liberating anti-complimentary substances. 3. Reduces the phagocytic and opsonic powers of the blood, showing that sodium citrate should not be used in general infections, or where resistive action is sought. 4. Sodium citrate increases the friability of the erythrocytes. This is not to be desired in the treatment of anemias.

In the more recent literature, the sodium citrate method of blood transfusion occupies a greater place of prominence. Certain that it is the method of choice from the standpoint of technique and apparatus required.

So simple is the technique, that the operator is certain of success. The transfusion may be done without assistance, and there is no necessity for hurry, since citrated blood may be kept for hours. Moreover, it is the exception that surgical uncovering of the veins is necessary, veins thus being preserved for further use.

The donor should lie down with arm from which blood is to be taken resting on a table or hanging over the edge, area over vein to be used should be sterilized and usual sterile precautions regarding draping should be taken, the tourniquet then applied above the sterile area. The tourniquet should be of soft rubber tubing, or arm-piece of blood pressure apparatus.

Size 10 calibre needle with short bevel may be directed into the vein pointing in either direction, and the blood obtained allowed to flow directly into the graduate cylinder containing the sodium citrate solution, at the same time stirring slowly and gently with a glass stirring rod. Elimination of tubing eliminates an unnecessary cause for friction, which may be partly responsible for transfusion reaction due to excitation of the first stage of coagulation. A warm towel held around the graduate eliminates a degree of chilling which has been partly responsible for transfusion reactions.

When ready for use, the citrated blood is poured into the graduate of the simple intravenous set. The amount of citrate generally agreed to be necessary is 0.25% (one volume of 2.5% sodium citrate diluted with 9 volumes of blood.) Unless the definite amount of blood to be drawn is known at the start of the transfusion, then it is best to add 10 c.c. sodium citrate at the start followed by 10 c.c. of citrate for every 90 c.c. of blood

used thereafter. The needle for recipient may be smaller No. 14, rate of flow judged and regulated by holding the graduate at higher or lower levels, giving 100 c.c. citrated blood in the first five minutes, then more rapidly. A dissecting set should always be in readiness in case difficulty is experienced in entering either veins, donor's or recipient's.

Regarding the cases reported of post transfusion reactions, in direct opposition may be the findings of Lewisohn, who reports a series of transfusions by both Unger method and citrate method. At the Mt. Sinai Hospital, in 1923, 143 transfusions were done on 104 patients; 60 transfusions by Unger method, resulting in 5 chills or 8% reactions; 83 transfusions by citrate method, resulting in 11 chills or 13% reactions; 214 consecutive cases transfused by cannula without reaction by Lindeman and 54 consecutive cases by Bernheim cannula by Horseley; and others with no reaction. He states that this is not proof of a superior method, but of a superior skill in that type of transfusion. He feels that the citrate method has been abused because of its simplicity, a lack of proper technique and experience by operators. The Mayo clinic reported 677 citrate method transfusions in 1923, with less than 10% post transfusion reactions. The result of a large number of cases in Dr. Lahey's clinic shows that the citrate method is in no way inferior to the other methods.

Post transfusion chills may be related to an obscure change in blood, with a preliminary stage of coagulation. There is a possibility of a variation in the acidity or alklinity between the citrate solution and the blood. Typeing may be at fault.

That the addition of sodium citrate to the blood is adding a foreign substance which may have some deleterious influence upon the blood transfused has not been proven, nor is citrated blood contraindicated in large transfusions because of the sodium citrate used. Newhof and Hirshfeld have injected 6 to 8 grams of sodium citrate intravenously without ever observing a reaction. Ashby states that citrated blood cells remain in the circulation up to 30 days. Cases of serious accidents Lindeman claims to be the fault of technique, wrong indications for transfusion or errors in testing of blood. Mellon Hastings and Casey

have proved that the anti-complimentary power in citrated plasma has no bad effect on RBC or WBC. A further proof of harmlessness of sodium citrate is a clinical use of melaena Neanatorum in which Lewishohn has injected from 80 to 100 c.c. into each of a group of infants, without bad symptoms. For nine years at the Mt. Sinae Hospital, transfusions of both citrated and uncitrated blood have showed no difference in clinical results.

Experimentally sodium citrate will destroy the blood platelettes but the coagulation time is decreased rather than increased, the sodium citrate thus presenting a hemostatic element. The action of the citrate is found to be an immediate and sudden diminution, (about 85%) in blood platelettes, the count returning to normal in one half to one hour. Platelettes are thought to be removed by the spleen and the contents, thrombopalstic substance cytozyme, is discharged into the blood, the coagulation time being thus shortened.

Transfusions of any kind are of little benefit in the treatment of infections, such as pneumoni, pyogenic infections ,and the like. This is due to alteration and reduction of phagocytic and opsonic powers. Transfusions may be used in chronic infections, however, in relief of the associated anemia. Lewisohn states however that sodium citrate does not have an inhibitory action on leucocytes for in Wrights opsonic index determination measuring the phagocytic action of leucocytes, the cells are collected in 1.5 to 2% sodium citrate solution, 10 times stronger than that used for transfusion.

With whichever method used, chills are less severe if the transfusion has gone smoothly and quickly. Perhaps the chief cause for post transfusion reactions following any method is due to improper typing of blood.

The most prevalent method of grouping is by the use of known serum against unknown cells for agglutination. The usual technique for grouping in the laboratory consists of mixing portions of a thin suspension of R. B. C. from the donor in normal saline, with known serum of type 2 and 3 in hanging drop, slight oscillation of the slide to mix the cells and serum should be made, and results read within 20 min.

Cells aggl. by neither serum belong to Gr. i
 (about 10% of total groupings)
 Cells aggl. by Gr. iii serum only belong to Gr. ii
 (about 40% of total groupings)

Cells aggl. by Gr. ii serum only belong to Gr. iii
 (about 7% of total groupings)
 Cells aggl. by Gr. ii and iii serum only belong to Gr. iv
 (about 43% of total groupings)
 Group i is universal donor
 Group iv is universal recipient
 If no tests made, possibility of accident is 36%

		Serum			
		I	II	III	IV
Cells	I	—	—	—	—
	II	+	—	+	—
	III	+	+	—	—
	IV	+	+	+	—

Due to the fact that there are sub-groupings wherever possible, patient and donor should be grouped directly. Moreover, in repeated transfusions the recipient may change his grouping so that direct typing should be done before each transfusion. Red blood cells are obtained by pricking the ear and permitting one drop of blood to be mixed in about 2 c.c. of normal salt solution. The serum obtained from the clotting of about 1 c.c. of blood. Typing should be made of recipient cells against the donor's serum and the donor's cells against the recipient's serum. Examination should be made under low powered microscope for agglutinization after the lapse of a few minutes time.

Associated with agglutination, is the phenomena of Hemolysis. Moss and Graeffe state that Iso-hemolysis follows the same law as Iso agglutination, the two reactions separate but parallel. The Hemolysin of serum and the Hemolysogens of cells never occur unless the corresponding agglutinins and agglutinogens are present. Hemolysis is less frequent than agglutination so that only agglutination test is made, but if complete hemolysis occurs, it is usually regarded as equivalent to agglutination. A non-specific agglutination may occur if the mixture of cells and serum is partly dry. Heat favors hemolysis. The agglutination power of serum gradually diminishes. The cells may settle. (Tests should be completed for these reasons in 15 or 20 min.) Thick emulsions of red blood cells should be avoided as those cells unagglutinated may mask the others.

Group characteristics are not always fully developed in young children. Occasionally there are sub-groups, so mutual tests are always necessary. Rarely auto agglutination occurs, so a control with saline should be made in each grouping.

A donor whose red blood cells are not agglutinated by the recipient's serum, even though his serum may agglutinate the patient's cells may be used, because the agglutinins present in the donor's serum, are present in limited amount, and become inactive when the serum is diluted beyond a certain point. The total transfusions seldom equals more than one tenth of the volume of the patient's own blood. Now if the transfused blood serum contains agglutinins for the patient's cells then this agglutinin is diluted at least 10 times by the patient's own blood plasma. This dilutes a small amount of agglutinin and distributes it among a large number of cells, no reaction occurs.

But if the agglutinins are present in the patient's serum, then upon the introduction of the donor's cells, the cells introduced are relatively few in number and the agglutinin large in amount. So the reverse action holds true, agglutination occurs. The intensity of agglutination by a given amount of agglutinin depends on the number of blood cells present to be acted upon.

These methods of grouping have given way in part to a method devised by Stetson of New York. The grouping requires a considerable length of time to complete, but is a microscopic test, brings to light Hemolysis, permits cells to be examined in large dilutions with the cells approximating the dilution normally found in the blood and reaction takes place at body temperature.

This technique for preparing serum from donor and recipient is to collect 8 to 10 c.c. of blood from each in a sterile test tube, shake 15 minutes and pour off the fibrin clot formed. Centrifuge for 10 minutes and pipette off serum from each. The cells from each are washed by shaking and centrifuging two or three times for 10 minutes each with sterile saline. Pipette off the saline leaving the cells.

Three or four drops of both donor's and recipient's cells are then placed in test tubes respectively, with about four times as much serum from donor and recipient making ratio of red blood cells 1 to 4. The tubes are incubated at 37° for one-half hour, then placed in an ice box for from 6 to 24 hours and results recorded. If the cells and serum are compatible, the cells will flow down the tubes in a stream, otherwise will clump macroscopically. If hemolysis occurs, the serum will be blood tinged before the tubes are disturbed.

The difficulty of this typing lies in the amount of time necessary for the typing and whether the small percentage of reaction under ordinary typing would warrant the delay in the transfusion.

In conclusion, sodium citrate may be used in the transfusion of blood as successfully as in the transfusion of blood by the other methods.

The method is favored by its simplicity and rapidity with which it may be done. Perfection of technique, though indicated, is not necessary.

The determination of the compatibility of bloods is of equal importance in all methods of transfusions.

¹Citrate Method of Blood Transfusion, Richard Lewisohn, *Boston Med. and Surg. Journal*, May, 1924, 190:733-742.

²Billings Forchanner, Therapeutics of Internal Medicine Blood Transfusion, Reuben Ottenburg, Chapt. IX.

³History of Blood Transfusion (Wm. Kerr), *U. S. Nav. Med. Bull.*, 16:465-475, March 22.

⁴Citrate Versus Unmodified Blood Transfusion (Max Lederer), *Surg. Gyn. and Obst.*, 37:221-224, August 23.

⁵Simple Blood Transfusion (Citrate Method), H. M. Chute, *Boston M. and S. G.*, 188:984-949, June 23.

⁶Transfusion of Unmodified Blood (Birnes), *Arch. Surg.*, 7:306-320, September 23.

⁷Transfusion Experiments in Over 200 Cases (Kimp-ton), *Bost. Med. and Surg. Journal*, 351-360, March 14, 1918.

⁸Absorption of Fluid Intraperitoneally, B. S. Danzer and A. F. Anderson, N. Y. C., Reprint from *Am. Diseases of Children*, June, 1921.

⁹Post Transfusion Reactions (Alteration in Blood After Ether Anaesthesia and After Blood Transfusion) (E. C. Levine and Segall), *Montreal Surg. Gyn. and Obs.*, September 22.

¹⁰Sodium Citrate Technique for Blood Transfusions, Jas. P. Henry, Reprint from *Canadian Med. Assoc.*, January 22.

IDENTIFICATION OF STREPTOCOCCUS OF SCARLET FEVER

The results of experiments made by Ruth Tunison, Chicago (*Journal A. M. A.*, Aug. 28, 1926), indicate that concentrated convalescent scarlet fever serums and the serum of rabbits properly immunized with scarlatinal streptococci are equally specific and are helpful in identifying scarlatinal streptococci, in studying doubtful cases of scarlet fever and in discovering carriers. By making opsonic tests directly with streptococci from colonies on the original blood agar plate, it is possible to detect scarlatinal streptococci sooner than by agglutination or toxin production as now determined.

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EDITORIALS

FASHIONS IN MEDICINE.

It has been said, and truly, that medical science has made more progress in the last few decades than in all its previous history. Marvellous as this advance has been, however, the fact remains that the unknown in regard to disease still vastly outweighs the known, and in no field of medical practice is this more striking than in that of treatment. Diseases and their manifestations are omnipresent, insistent on cure or relief; actual knowl-

edge on which to base rational therapy is woefully meagre; treatment, therefore, unable to await new discoveries, must of necessity be largely empirical. It is this chain of circumstances which makes possible the development and spread of the fads and fashions to which the practice of medicine is so curiously addicted. Yesterday the ductless glands, with their mysteriously powerful secretions, captured medical imagination, and all sorts of disease conditions were treated by endocrine products. Today physical agents are to the fore, and innumerable forms of imposing apparatus are offered for our use in combating almost every known dis-

ease. Tomorrow some new form of treatment will arise and become fashionable, only to fall in its turn before some still newer development. An honest enthusiasm to find something of benefit to the patient lies behind each succeeding wave, and we would not for a moment attempt to discourage this spirit. We would urge, however, a more judicial frame of mind in regard to any new form of treatment and a more careful weighing and consideration by the physician of the methods offered for his use. As Osler has so well phrased it, "The salt of life for him is a judicious scepticism, not the coarse crude form, but the sober sense of honest doubt expressed in the maxim of the sly old Sicilian Epicharmus, 'Be sober and distrustful; these are the sinews of the understanding.'"

CENTRALIZATION.

Perfection of organization whether it be in business, religion, socialization, education or what not is the essence of efficiency. Add to that, well directed industry and the results will not be far to seek. There can be no doubt but that at the present time we have a most chaotic state of many things pertaining to matters medical,—a large number of successfully active boards, bureaus, commissions and committees, funds and services with, as far as we can find out, but little interaction, and cooperation.

Quite a few of these organizations publish no annual report or other statement of their activities, expenditures or incomes.

In this age of drives, most of which are distinctly successful, it is of interest to know the amounts actually realized, the cost of its prosecution and what is being done with the money. Once the cash received, the recipients seem to think that their duty is done and that there is no need of an accounting to the public which has so generously responded to their sometimes none too definite appeal. The matter is then lost sight of and no one seems to know what happened, who essentially benefits or what success has attended the philanthropic efforts. In the various branches of social service but little attempt is made to inform the public or profession of the results of domiciliary visits and of the many highly interesting and important features of the none too well known

enterprise. It is extremely difficult to obtain accurate information as to what is being done in these various activities. Individual workers can of course give information as to their own labors but what is of interest to the sociologist and the philanthropist are various facts learned from the total of the investigator's activities. In this regard we must particularly commend the reports of certain hospitals which have come under our notice, statements which account for every dollar of income and its expenditure, the whole being certified by auditors. The businesslike way in which the affairs of such institutions is perhaps one of the reasons for the substantial bequests which they receive and for the public confidence they enjoy. Anyone who contributes five dollars or more to any enterprise should know something of the subsequent course of the affair. If he does his interest is continued and it may be that he will again give of his substance to the worthy cause. In the present state of chaotic indiscriminate giving, of more or less unorganized and over-lapping of effort it is very difficult if not impossible to obtain information concerning social and charitable activities. It should not be enough to know that certain sums are being devoted to certain purposes it should also be possible to know the particulars of the object. An interesting example has recently been brought before the public in which an organization has devoted a part of its funds to the very worthy object of crippled children. Now we are not to be understood as in any way disparaging or belittling this social and surgical activity. We are simply inquiring if this particular branch of surgery and social service was selected by this organization by reason of outstanding and urgent necessity, if such information could be made available. In the first place we did not know that crippled children were not looked out for by our hospitals and other charitable institutions. This was the very first time it had been brought to our attention that there was such a special need. In fact it is said that in some of our best hospitals the orthopedic clinic was the largest of all,—larger even than the general medical and surgical. It has been suggested by some that the cause would be better served by local hospitals than by a particular focus serving selected cases from a large and not particularly accessible area: that those institutions already

equipped would still serve and that those not so well furnished could use such funds to advantage and add needed apparatus and methods.

Another benefit which perchance might be acquired by more perfect organization is the suppression of the practise of medicine by the nursing profession and the prevention of its interference in matters medical. It is not necessary to offer specific examples of the activities of the industrial nurses outside of their most necessary and helpful field or of the efforts on the part of school nurses to direct cases to favored physicians nor will space permit, but were organization more complete it would be easier to remedy these rapidly growing practises. It is outrageous that any official should urge any particular physician or in any way interfere in cases with which he or she is not professionally concerned.

It occurs to us also that in some cities a central agency for nurses is maintained by the Medical Society a thing that is in itself a guarantee of efficiency and which cannot fail to benefit both the nursing and medical professions.

DOCTORS AND CHARITY.

There is no class of people who give so much of their time and energy to free service as do physicians. It has always been true but there is a limit to which it should be carried. The doctor must live and if too much time and energy are devoted to charity it prevents him of attaining his greatest earning ability. In many instances rather than refuse demands made upon him, he sacrifices time for recreation, which results in great inroads upon his health. Many a physician has shortened his life by endeavoring to faithfully serve his own patients and to meet these outside demands.

In towns and small cities where hospitals do not exist the physician feels constrained to answer all calls whether he expects a fee or not. His own good name and the human appeal of the sick compel him to do it.

In the larger cities it is possible for him to refer indigent patients to the hospital for he knows that they will not be denied treatment. But even so, every doctor does much charitable work in his office and in the home, to say nothing of the

people, although able, who avoid paying the doctor whenever possible.

Free service in hospitals and dispensaries is, however, not without compensations. There he gains experience and is enabled to keep up with the progress in medicine. He gladly gives of his time for he realizes that he will be repaid by the prestige and knowledge which such service brings to him. Sometimes, however, he tries to hold too many appointments, and is obliged to slight his work to the detriment of himself and those he would serve.

There are, however, many demands upon the doctor from various charitable institutions for medical service which is often of small benefit to him. Either he will slight his duties or meet them at great sacrifice. There has been a great increase in the number and size of charitable societies and institutions of various kinds and such medical service as they require should be paid for. If a physician gives more of his time to free service than he should, some one must pay, and it has resulted already in such increases in fees, especially surgical and those charged by specialists, than would be warranted were he to give all his time to his own practice.

The public demand for more medical service is rapidly increasing. People in their homes and in their institutions call for it for ailments which years ago would receive attention by a mother or father. It should be met, for prompt treatment for what seems to be trivial illness may save life or disability, and his efforts will result in improved public health. Something should be done to gradually take part of the burden off the physician.

RECREATION

Physicians are constantly advising other people how to live properly, yet few follow their own teachings. A doctor lost to the community only recently prided himself on never taking a vacation. He was a successful practitioner but died at the most active period of life because he neglected to care for his own health.

The life of a physician is more arduous than that of almost any other profession. He is called at any time during the day or night. He is never sure when he will be able to get his meals, if at

all. If his wife plans any recreation, more often than not he will be unable to go, or if he does go is likely to be called away before the evening is over. It is a hectic existence and no one except the doctor and his family realize how hard is the physician's lot, particularly that of the general practitioner.

At best his life is bound to be a strenuous one, yet by judicious planning it might be made easier. He owes to his patients, if not to himself and family, to keep physically fit. The very lives of his patients are at stake and if, because of over-work and exhaustion, he errs in a diagnosis or at an operation, he punishes his patient as well as himself.

Not infrequently it is the fault of the doctor himself. He does not properly plan his work or fears to take any time for play. Much can be done by beginning work at a definite hour each day and following a strict routine as nearly as possible. At least one day or part of two days each week should be set aside for a trip, golf or some other form of exercise. It is well known that the busiest men are the ones who will undertake some civic duty and get things done because they work methodically, making every minute count.

Already many physicians are taking a definite afternoon every week for exercise or some form of recreation, but the practice should be more general. The doctor's good health is of vital interest to many sick people every day, and to preserve it is his duty. In the end it pays in dollars and cents.

SOCIETIES

THE RHODE ISLAND MEDICAL SOCIETY

The regular quarterly meeting of the Rhode Island Medical Society was held September 2, 1926, at the State Hospital for Mental Diseases, Howard, R. I., by invitation of the State Public Welfare Commission.

The minutes of the annual meeting were read by the Secretary. The President announced the death of Doctors Frederick G. Phillips, and George T. Spicer, and referred the subject to the Committee on Necrology. The rest of the morning

was spent in the inspection of the hospital and other units of the State Institutions. At 1:30 dinner was served in the Congregate Dining Hall. The meeting then adjourned to the Chapel for the regular meeting at which Dr. John Champlin, Chairman of the State Public Welfare Commission, welcomed the Society on behalf of the State.

Dr. Harry L. Barnes presented the following Resolution:

WHEREAS, Dr. Arthur H. Harrington has resigned his position as Superintendent of the State Hospital after a service of 19 years, the Rhode Island Medical Society desires to record its appreciation of his notable success in developing the State Hospital and improving the care of the Insane.

After being duly seconded the above Resolution was passed unanimously.

The following papers were then read:

"The Psychiatric Viewpoint," Dr. Arthur H. Harrington.

"The Clinical Study of the Patient from the Laboratory Standpoint," Dr. Samuel I. Kennison.

Before adjourning a vote of thanks was attended the State Public Welfare Commission and Dr. Harrington for the courtesies shown in entertaining the Society for their quarterly meeting.

Respectfully submitted

J. W. LEECH, M.D.

Secretary

ADDRESS OF WELCOME TO THE RHODE ISLAND MEDICAL SOCIETY, BY DR. JOHN CHAMPLIN, CHAIRMAN OF THE STATE PUBLIC WELFARE COMMISSION

It is my pleasant duty, as Chairman of the Rhode Island State Public Welfare Commission, to extend to the members of the Rhode Island Medical Society a most hearty welcome to the State Institutions.

This meeting seems to me more like a family gathering than a formal affair, for more than thirty of your members are in some way connected with the duties of the Commission, in its care of something over 7,600 people. Two of your ex-

Presidents, Dr. John W. Keefe and myself, have served on the Commission for many years, while your present Vice-President, Dr. A. H. Harrington, has been superintendent of this State Hospital for Mental Diseases for nineteen years. We deeply regret that this long service will terminate the first of next month, for during these long years Dr. Harrington has built up a wonderful institution, which will be a monument to his skill and energy. We are fortunate that he has consented to continue with us as Consulting Psychiatrist, while another member of the Society, who has done wonderful work as superintendent of the Infirmary, Dr. R. H. Sartwell, becomes superintendent of the Hospital for Mental Diseases.

You were here just five years ago. Since that time much progress has been made toward our objective—the best state institutions of any state in the union. Many new buildings have been constructed and old ones revamped to bring them up to the high standard of the new ones; new equipment has been added and the most modern methods in the care of unfortunates adopted. We are looking forward to still further improvements, and will appreciate any constructive criticism which you may give us.

PROVIDENCE MEDICAL ASSOCIATION

(Providence District Society)

The regular meeting of the Providence Medical Association, was held at the Medical Library, 106 Francis Street, Monday Evening, October 4, 1926, at 8.45 o'clock.

Program follows:

1. Report on a Method for Treating of the Femur. Dr. Charles O. Cooke and Dr. Peter Pineo Chase.

2. Intestinal Obstruction. Dr. Edgar B. Smith; Discussion opened by Dr. Herman C. Pitts.

The Standing Committee has approved the following applications for membership:

Cecil Calvert Dustin, Jesse Merrill Gibson, John Picozzi and Meyer Saklad.

Collation followed.

PETER PINEO CHASE, M.D.

Secretary

HOSPITALS

PROVIDENCE CITY HOSPITAL

News Items

Dr. Harmon P. B. Jordan, Assistant Superintendent, has been chosen Superintendent of the Lying-in Hospital, and began his duties on October 1st. He has served the City Hospital for fourteen years. He will be greatly missed. He takes with him best wishes for success and happiness in his new position from all his former associates.

The vacancy caused by Dr. Jordan's resignation has been filled by the elevation of Dr. Roy W. Benton, for over a year second Assistant Superintendent. Dr. Benton's place is to be taken by Dr. Panos S. Dukakis who finished a six months' service in this hospital on October 1, 1926.

On September 1st Dr. Rose Munro finished a three months' service and then went to the Memorial Hospital, Worcester, Mass., as house officer. On the same date Dr. Robert C. O'Neill began a three months' service. On October 1st Dr. Linley C. Happ will finish a three months' service as house officer, and Dr. Edgar F. Stone will take his place.

MISCELLANEOUS

EXOPHTHALMIC GOITER AND TOXIC ADENOMA

Allen Graham, Cleveland (*Journal A. M. A.*, Aug. 28, 1926), has been unable to recognize a single symptom or sign that is necessarily pathognomonic for exophthalmic goiter as opposed to toxic adenoma; nor has he recognized a single anatomic or histologic alteration in the thyroid, in either the adenomatous or the nonadenomatous portion of the gland, that is necessarily pathognomonic for exophthalmic goiter as opposed to toxic adenoma. The degree of hypertrophy and hyperplasia of the thyroid determines the quantity of iodine that will be tolerated, without untoward effects, in both exophthalmic goiter and toxic adenoma. The reaction to iodine is fundamentally the same in cases of exophthalmic goiter and toxic adenoma. Graham sees no alternative but to regard exophthalmic goiter and toxic adenoma as clinical variations of a single morbid state.

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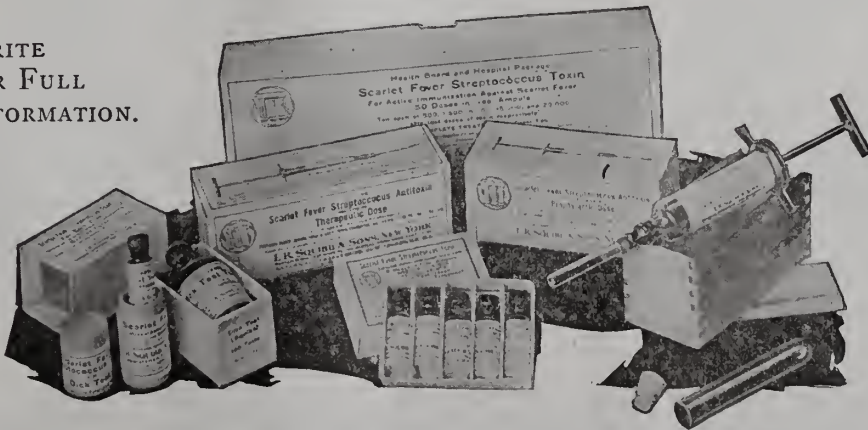
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THE RHODE ISLAND MEDICAL JOURNAL



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ORIGINAL ARTICLES

DEEP X-RAY THERAPY*

Its Development and Present Status

BY ISAAC GERBER, M.D.

AND

SIMON ALBERT, M.D.

PROVIDENCE, R. I.

It is our purpose in this paper to counteract some of the misconceptions regarding deep x-ray therapy which exist in the minds of many physicians. These misconceptions have impeded the progress of radiologists and have frequently been responsible for preventing the beneficial application of treatment to some patients. This lack of whole-hearted support on the part of the medical profession is partly due to the bewildering confusion through which our present attitude toward deep therapy has developed.

The term "deep x-ray therapy" is used to designate the application of x-rays produced by tube voltages over 100,000, more especially those in the vicinity of 200,000. The term "superficial therapy" is used to designate the application of x-rays produced by voltages under 100,000. Treatment with 200,000 volts is spoken of also as High-Voltage treatment, while the use of voltages under 100,000 is spoken of sometimes as Low-Voltage treatment. High voltages produce rays of shorter wave length and hence high-voltage treatment is also spoken of as Short-Wave-Length treatment in contradistinction to the Long-Wave-Length treatment in low voltages.

As a matter of fact, ever since radiologists have been treating deep lying pathology they have been doing "deep therapy." This has been a matter of at least twenty years. The rays of short wave-length, however, are much more penetrating and the newer technique of application allows us to deliver more effective doses than formerly. We

are able to produce destructive doses in the depths much more easily and without necessarily producing a dermatitis. This was a continual handicap with the use of low-voltage apparatus.

About ten years ago so-called modern deep therapy with voltages around 200,000 was first introduced by the Germans, particularly the gynecologists. It is now questionable as to whether or not their apparatus was actually able to deliver the high voltages they claimed. Their x-ray tubes were capable of taking only about 180,000 volts with 2 to 2½ milliamperes. Apparatus has since then developed so that today machines can deliver 300,000 volts if necessary and water-cooled tubes will take 250,000 volts and 50 milliamperes with continuous operation.

The therapeutic application of x-rays has had a stormy career since the early enthusiasm of radiologists back in 1905. This initial wave of enthusiasm was promptly followed by a wave of depression resulting from a realization of the possible harmful effects of improper radiation. The period of depression was followed by a long, slow struggle to overcome prejudice and get radiation therapy back to a sensible basis. Dosimeters were introduced to measure the intensity and the quality of rays and various other steps were taken to insure the avoidance of possible injury to the patient.

The publication of some of the results of the application of high-voltage x-rays to deep seated malignant disease about six years ago aroused an enthusiasm similar to that which broke forth in 1905. It was only a short time, however, before reports of serious harm began to come in from various sources. These reports changed the enthusiasm of our radiologists into a fairly long-enduring skepticism. Most of them listened, some of them visited the different European clinics, but few attempted to bring the status of deep therapy back to a rational basis.

Today there are very few radiologists who will not readily admit that high-voltage x-rays can produce beneficial results which were impossible of achievement by former low-voltage methods.

*Read before the Rhode Island Medical Society, December, 1925.

The successful application of high-voltage x-rays, however, has proved to be far more difficult than was at first realized. Cellular structure is apparently more sensitive to short wave, high-voltage, deep therapy than to long wave, low-voltage, superficial therapy. The two wave lengths are to be regarded as essentially different therapeutic agents. The true explanation of this difference in cellular response to the various wave lengths has not yet been definitely demonstrated.

Most of the early work on deep therapy was done in 1920 and 1921. At this stage there was no such thing as a status of deep therapy. Everything was chaotic. Most of the Germans were in agreement on the necessity of having apparatus able to deliver at least 200,000 volts and the necessity of employing heavy filters to cut out all long wave lengths which were of low penetrating value. There was the greatest possible divergence of opinion on all vital questions of technique. Some insisted on large fields and long distances in order to get the benefit of a larger proportion of depth dosage, and a greater amount of deep scattered rays. Others insisted on concentration with compression to get nearer the pathology. Some insisted on applying the entire dosage within one or two days, while others divided it over a week's period. Others used four weekly doses. Some wanted a slight erythema. Others insisted on a severe skin reaction. Some wanted to repeat the erythema dose in six to eight weeks, while others maintained that it must not be repeated in under six months. Everyone held that the prime object of the radiation was to deliver a death-dealing dose to the cancer and they all brought forth plausible arguments in their favor.

In the high-voltage treatment of malignancy, Seitz and Wintz were the first to establish a so-called "carcinoma dose" and a "sarcoma dose." The existence of any such rule-of-thumb dosage has since been denied by numerous investigators, particularly by the Americans and the French. Carcinomata respond to high-voltage x-ray therapy in vastly different ways dependent upon their morphological, histological and genetic differences. Thus, uterine and breast cancers in general, respond much more favorably than do gastric and colonic cancers. Primary growths also respond much better than secondary metastatic growths.

Sarcoma dosage perhaps is still more complex

than carcinoma dosage. The so-called "sarcoma dose" of Seitz and Wintz does not apply to bone sarcoma or giant-cell sarcoma. It does hold for small round cell sarcomata and the group of lymphatic system sarcomata. Periosteal and endosteal sarcomata are not very amenable to a uniform sarcoma dose. The same is true of melanotic sarcoma. Sometimes we see apparently identical types of sarcomata react very differently to the same irradiation.

One of the most interesting phases in the development of the dosage technique was concerned with the question of whether to administer large massive doses within a very short period of time or whether to split the total dose up into moderately small fractions and administer them over a period of a week or two. The massive doses were advocated by the Germans. Most of the Americans were inclined toward the moderate doses which were far less prostrating and proved just as efficacious, if not more so, than the massive applications. The French sponsored a third method which even today is considered by a good many radiologists as offering more hope than the others.

The French technique has been advocated chiefly by Prof. Claude Regaud, Director of the Radium Institute of the University of Paris. A very plausible argument is advanced in his support. It is admitted that cellular structure is most sensitive to radiation during the period of cell division. In a given mass of cancer tissue, cell division is going on over a long interval of time. At any one given time, only a relatively few cells are in the actual process of division. These are the ones most apt to show a response to the radiation. Those not radiated during the period of cell division may be entirely unaffected by the rays. On this basis, if minute doses are given every day or even twice a day over long periods of time, the chances are that most of the cancer cells will be irradiated during their cycle of cell-division. This prolonged treatment can be done easily without overlapping the bounds of safety. It offers something which today is attracting the serious attention of radiologists. It is very possible that it may soon supplant in at least some of our work, the technique hitherto employed.

All the foregoing discussion can be condensed into the following few statements:

1. High-voltage deep x-ray therapy has a value unquestionably superior to that of low-voltage therapy in the treatment of deep-seated pathology.
2. The two wave lengths are to be regarded as essentially different therapeutic agents.
3. There is no such thing as a cancer dose or a sarcoma dose.
4. There is no accepted technique of application of the high-voltage x-rays which is routine.
5. In a general way, the massive doses of the Germans have been given up.
6. The daily minute dosage advocated by the French is not yet wholly accepted but radiologists are still working on the problem.

Heavy treatment with x-rays constitutes only a single factor in the treatment of malignancy. We purposely omit discussion of Surgery and other physical agents such as Radium, Electro-desiccation and Coagulation. The ideal treatment of malignancy employs all these agents, alone or in combination, as the individual case requires. Our most satisfactory results are seen usually in those cases where we use combined methods. This is particularly true in cancer of the cervix. These cases lend themselves very favorably to a local radium application followed by a homogeneous general irradiation of the entire pelvic region by means of the high-voltage x-rays. The x-rays will manifoldly increase the value of the radium, more especially where the pathology shows an extensive invasion. Radium and high-voltage x-rays, however, do not replace each other as therapeutic measures. They both serve entirely different purposes.

In *General Surgery*, the application of deep x-ray therapy has been widespread in both benign and malignant conditions. Among benign surgical conditions, the method has proved of especial value in the treatment of mastitis and in the treatment of tuberculous bones and joints. If the diagnosis of mastitis can be established with any reasonable certainty, the conservative application of high-voltage x-rays to such a process will cause rather prompt and rapid subsidence of the pathology. In most cases, if the condition does not show signs of disappearing within a week or two, a more serious pathological condition should be suspected and treated accordingly. Meanwhile the delay is not dangerous as the treatment has a definite pre-operative value.

In chronic bone and joint tuberculosis we have frequently found that small doses of high-voltage x-rays given at three to four week intervals will facilitate a much more rapid improvement and convalescence. Considerable investigation along these lines has been carried on by German scientists. American radiologists, however, have not reported very much in the literature either in corroboration or in disapproval of the German reports. Personally, we have handled several obstinate cases of tuberculosis of the os-calcis which showed unquestionable clinical and roentgenographic improvement, both of which were completely absent for months and in one case for years, preceding the application of the x-rays.

Among the malignant conditions in the field of *General Surgery* we shall try to consider primary and metastatic cancers and sarcomas according to their regional distribution. In a general way, as previously stated, high-voltage x-rays are far more effective on the initial primary growth than upon any of its metastases. In far advanced conditions usually a temporary palliation is all that can be hoped for. Pain may be relieved. Foul, sloughing discharges may be abated or cleared up entirely. An improvement in the mental attitude of the patient may be stimulated by his feeling that something objectively is being done for the relief of his ailment.

In malignancy of the abdominal region, the stomach, colon, liver, pancreas, spleen, kidney, retro-peritoneal growths, etc., no general statements can be made. Cancers of the stomach, pancreas and liver, usually are not very responsive to deep therapy because the severe toxemia produced by direct radiation over the upper abdominal region interferes with the possibility of getting sufficient x-rays into the malignancy to produce the desired effect. Lymphomatous growths of the abdominal region, however, show a decided response to small doses of x-rays. Splenic tumors are most frequently of the leukaemic types. These will be discussed later. Tumors of the kidney usually require large doses of x-ray, and palliative results are all that we can expect although palliation may sometimes last for several years.

In connection with the treatment of upper abdominal conditions we must consider the possible effect of the rays on the adrenal glands. In the early days of the use of high-voltage deep ther-

apy, radiologists continually dreaded the possibility of their causing irreparable damage to these organs with resulting Addison's disease. Since then experimental research has shown that this fear has very little real foundation.

Cancer of the breast offers one of the most valuable fields for deep x-ray therapy. It can be used advantageously before or after operation, or in inoperable cases. It will frequently change an inoperable cancer into an operable one. It will promote local healing of cancerous ulcers. It will relieve pain. It will effectively prevent or delay local recurrences.

In malignancies of the lungs and the mediastinum our results are very variable. Sometimes we can observe a marked palliation while at other times we see the patient progressively go down hill without evidence of the least benefit from the radiation. In the treatment of pulmonary and mediastinal malignancy we have come to use small doses repeated daily or every other day until our total dose is administered. The large doses which were administered in a few sittings during the early days of high-voltage therapy were found to be far too prostrating, thereby tending to counteract any possible benefits from the treatment.

In cancer of the esophagus the disadvantage of massive radiation over a very short interval was readily apparent. Obstruction and toxemia were increased, pain was often increased and death hastened. With cautious, small, frequent doses, obstruction usually can be temporarily relieved, the toxemia lessened, pain diminished and although life may not be actually prolonged any considerable period of time, it is made a good deal more comfortable until the termination.

In the benign *Gynecological* conditions, high-voltage therapy accomplishes its ends chiefly by the castration effect. X-ray castration, like a normal menopause, produces changes usually associated with ovarian non-function. There is a retrogression of myomata. There is a disappearance of hemorrhagic metropathies. It is also believed that x-ray castration will arrest the softening of bones in osteomalacia. The production of an artificial menopause is also of value in hastening the termination of a menopause which is causing prolonged distressing symptoms, particularly mental derangements. The ovaries are very sensitive to radiation. An attempt is made to stop the function of the

follicles without impairing the general health of the patient. By distributing the castration dose over several treatments the climacteric symptoms usually can be greatly mitigated. It has been found that some types of uterine hemorrhage will entirely clear up after small doses of penetrating x-rays applied over the spleen.

In malignant *Gynecological* conditions high-voltage x-rays in combination with radium have given us perhaps our most satisfactory results. Seitz and Wintz in the Frauenklinik at Erlangen, developed the so-called small field applications, cross-firing through numerous small portals of entry concentrated upon the local pathology. Very shortly afterward, Dessauer and Warnekros, working upon the principle of utilizing scattered rays, developed the so-called large field method of therapy. This consisted chiefly in the treatment of uterine cancer through four large portals. For a time there was bitter controversy between these two schools of therapy. At the present time we have come to the conclusion that each method has its own value depending upon what is being treated and whether or not we desire a homogeneous or a focal application. The Seitz and Wintz method will give a local effect and is best employed in cases of well localized pathology. The Dessauer method will give a homogeneous effect and is more valuable in extensive pathology.

High-voltage deep x-ray therapy in the purely *Medical* field has been advantageously utilized in the various types of leukaemias and in the Hodgkins type of lymphoblastoma. It has also been of value in certain types of resistant bronchial asthma and chronic bronchitis.

In the various leukaemias the treatment is directed to the enlarged lymph-nodes or spleen and also to the bone marrow of the long bones. In the initial radiation the response is more prompt and more complete. In later radiations over the same regions there is a diminishing effect. Distress from abdominal distension, pressure from enlarged or overactive lymphoid structures and pains in the limbs, are temporarily relieved. As for actual prolongation of life, Minot's studies indicate there is no definite evidence to show that radiation does anything more than render the patient's existence more comfortable and symptom-free.

The same thing is usually true of the lymphoblastomata. The radiation will relieve symptoms more readily in the initial treatments. The later response becomes progressively less. Life is not actually prolonged but the relief of distressing symptoms makes the patient much more comfortable.

In asthmatic and chronic bronchitis cases which do not respond to the usual methods of treatment, the use of high-voltage x-rays offers a possibility of some relief. In favorable cases careful radiation will lessen the paroxysms and cough, diminish the amount of sputum and change the microscopic character of its constituent elements.

As for the future prospects of high-voltage deep therapy one finds it difficult to make any definite assertions. From what we have seen of it in its brief career of five or six years there is no question in our minds but that it is here to stay as one of the most valuable means for physical therapeutics which we have at our command.

FUNCTIONAL UTERINE HEMORRHAGE*

BY GEORGE W. WATERMAN, M.D.

Mr. President and Members of the Providence Medical Association:—

This paper on Functional Uterine Hemorrhage which I am about to read is a somewhat modified and condensed edition of a paper which I read on this same subject before the staff of the Providence City Hospital in April of this year.

The term functional uterine hemorrhage is applied to a rather large group of cases of bleeding occurring during the reproductive period, which assumes considerable importance because of the quite large numbers of women afflicted, and because of the severity of symptoms which can arise as the result of the continued and often intractable loss of blood. This type of bleeding is not associated with any malignant or benign neoplastic process nor with obvious inflammatory or pregnant states.

HISTORY

These cases come to us with a history of bleeding which in the early case takes the form of a

menorrhagia, i.e., profuse and prolonged periods often coming at more frequent intervals so that where previously the periods were of the 28 or 30 days type lasting 3-4 days, they now come every 2 or 3 weeks and last 7 to 10 days, and if the condition is allowed to continue and progress, the periods become practically continuous, and where the flow is profuse, marked symptoms of a severe secondary anemia appear so that in many cases extirpation of the uterus formerly had to be resorted to, to save life. Many of these cases give a history of one or more curettings over a number of years, the bleeding being controlled thereby for a longer or shorter period, and then recurring.

This condition occurs chiefly within the child-bearing period. It may develop shortly after the onset of menstruation, the so-called early or puberty bleeding. (2) during adolescence, (3) during the period of greatest reproduction activity (3rd and 4th decades of life), and (4) is perhaps most commonly seen at the preclimacteric and climacteric periods, although occurring occasionally after the menopause is established.

TYPE OF SUBJECT

Concerning the physical findings in these cases, I have not been impressed that any particular type of woman is more prone to be afflicted than any others, the obese and the slight, the brunette and the blond, the highly neurotic and the calm phlegmatic types all appearing in about equal numbers. Rubin of New York feels that the neuropathic, visceroptotic type is more frequently associated with this condition, but although I have no definite figures it seems to me that the stalwart, broad chested type appears as often.

The local examination in the early case often reveals practically nothing to account for the bleeding. The corpus uteri may be within normal limits, may seem small, is perhaps most frequently a little large. In cases where the bleeding is of long duration the uterus is almost invariably large and of a tough dense consistency. The cervix may appear normal or may be the seat of the usual lacerations, erosions and degeneration to which the multiparous cervix is subject and which no one ever associates with bleeding. The uterus may be in good position or retroverted. The ovary shows little except some cystic degeneration of follicles as a rule, although in the puberty cases

*Read before the Providence Medical Association, June 7th, 1926.

there is a rather constant hypertrophy. The tubes are not palpable and appear to play no part in this condition. The endometrium may be abundant—moderate or normal in amount or scanty.

We may sum up the physical findings in these cases by saying that while anyone of the many pathological conditions to be found in the female pelvis during the reproductive period may be present, such as lacerations, erosions, cystic degeneration, malpositions, etc., that there is no one condition which is always present or characteristic of the condition.

If there is so little to be found on physical examination to account for such intractable and persistent bleeding, what do we know about this condition, what is its etiology and pathogenesis; does it arise as the direct result of local inflammation, or is there a more underlying factor to be sought for in the endocrine or sympathetic nervous system? Are the causes local or general?

LOCAL CAUSES

The older writers focussed their attention on the *Myometrium* or on the uterine wall as the source of the disturbance, and had an inflammatory origin in mind. Scanzoni, 1860, described chronic metritis, finding that intractable hemorrhage was always secondary to an acute inflammation of the myometrium, describing a soft stage of hyperemia, infiltration and edema, and a hard stage of induration and fibrous replacement with increased brittleness of the arteries.

Theilhaber thought that there was an increase of connective tissue at the expense of muscle, causing an interference with the proper function of muscle in controlling the arteries and gave the name *uterine insufficiency*.

Anspach described the condition as *metrorrhagia myopathica*, finding that there was a failure in the normal increase in elastic tissue with excessive production of fibrous tissue making firm compression of uterus impossible, and thus causing disturbances in the endometrial circulation.

Goodall, 1910, believed that as women grow older, organs regenerate new tissues, especially blood vessels, less perfectly, there is more elastic or fibrous tissue replacement and less muscle regeneration, hence heaping up of fibrous tissue with loss of contractibility of vessels. Finds the removal of ovaries cures some milder cases because it re-

duces periodic congestion of periods, but where bleeding is profuse and metrorrhagia present does no good. Believes that the cause of the bleeding lies in the uterus and follows acute infection and subinvolution.

Polak in his Monograph on Pelvic Inflammation, 1922, describes fibrosis uteri, chronic metritis and subinvolution. He falls in with the older school believing that these conditions always result from inflammatory causes but believes in addition that there is a failure on the part of the endometrium to produce the proper ferments causing coagulation of blood.

Schickele and Keller in a very laborious piece of work in 1912, attempted to verify the findings of *Theilhaber* in regard to the part played by connective tissue in uterine bleeding. They took sections from the myometrium in a considerable number of extirpated uteri, stained them to show up the c. t. and projected the sections on millimeter paper. In this way a fairly accurate estimate of the relation of c. t. to muscle fibers was obtained. Their calculations led them to believe that uterine hemorrhage had nothing to do with the amount of c. t. present. Hemorrhage might be associated with hypertrophy of c. t., might occur with a perfectly normal amount of c. t., or might be entirely absent with a large overgrowth of c. t. (See Graves p. 58.)

Frank believes that inflammation is not a factor but that the fibrosis is due to ovarian hyperfunction.

2. The Endometrium

Before the work of *Hitschman* and *Adler* in 1908, the condition of *chronic endometritis* was often described as a cause of uterine bleeding and many changes in the uterine mucosa were described as evidences of inflammation, which we now recognize as usual phases of the menstrual cycle. It is now felt that a true inflammation of the endometrium is very rare outside puerperal or postaportal conditions. The uterine cavity is exceptionally well drained, and with the periodic congestion and throwing off of the superficial layers of the endometrium, infection is usually short lived. True evidences of inflammation as the plasma cell, the infiltration of leucocytes and lymphocytes are rarely seen. A condition of the endometrium was described in 1900, by *Cullen* as being present in a large number of these bleeding cases, and has

recently been again brought to the attention of the profession by Novak. These men note that grossly the endometrium in these bleeding cases may be greatly thickened or polypoid, sometimes even suggesting by the large bulk of tissue obtained in curetting the presence of malignant change. In some cases however they find that the endometrium is normal in amount, or even scanty, and that in some of the most intractable cases practically no endometrium can be obtained. Whether the endometrium is thick or scanty or normal in amount they find, however, on microscopical examination that there is a more or less typical appearance, a certain rather characteristic gland pattern, which consists in an overgrowth of the basal layer of glands and interstitial tissue with practical loss of the superficial layers usually found in the premenstrual or menstrual mucosa.

3. *The Ovary*

That the cause of pathological bleeding may lie in the ovary would seem entirely plausible in view of the undoubted relation that the ovary plays to normal physiological uterine hemorrhage. Without the presence of the ovary menstruation does not occur.

Whitehouse in 1914 demonstrated that there is evidently an enzyme or ferment which plays an important role in physiological and pathological hemorrhage. Whether this enzyme arises entirely from the ovary and is thrombolytic in character, accumulating in the endometrium until enough is present to cause degeneration of capillaries and solution of fibrinogen with resultant bleeding, or whether there is in addition another enzyme, as believed by Rubin, which arises in the corpus luteum and causes clotting, thus controlling hemorrhage, seems difficult to prove.

Many writers find the ovaries enlarged, especially in cases occurring during puberty and adolescence with cystic follicular degeneration and failure of corpus luteum formation. They find in this failure of a normal corpus luteum development the cause of the excessive bleeding, believing that the corpus luteum forms a blood clotting hormone necessary to the control of hemorrhage. That cystic changes are found rather frequently in these cases any surgeon of experience will attest. I have seen a fully developed corpus luteum in more than one ovary removed from a case of functional

bleeding and there are numerous records in literature showing the presence of well developed corpus luteum in such cases.

Aside from this tendency to cystic degeneration of follicles there is no constant change in the gross or microscopic appearance of the ovary to account for the difficulty.

4. *The endocrine and sympathetic nervous system*

I have already referred to Rubin's theory that many of those cases arise in women of a neuropathic, vagotomic type, subjects of visceroptosis with hyperacidity and atony of stomach, obstipation, hypersecretion of salivary, sebaceous and sweat glands. He believes that the abnormal function of the ovary is merely a symptom of a generalized derangement of the sympathetic nervous system, or perhaps of the endocrine system as a whole.

That the endocrine system is at fault is borne out by the more frequent occurrence of this condition at puberty and at the menopause, when it is well recognized by all authorities that a general readjustment of the functions of these organs is going on, as shown by increased irritability, vaso motor disturbances, thyroid disturbances and all the commonly seen phenomena so peculiar to these periods of life. Also certain early cases yield to the administration of thyroid or pituitary gland extracts showing that there are factors concerned outside the pelvis.

In reviewing the material which has come under my observation at the Rhode Island Hospital on the radium service of the gynecological department in the last three years I have made the following generalizations:

(1) That in the early cases where the history of excessive bleeding was of short duration, little if any gross change in the pelvis organs was found except perhaps a thickening of the uterine mucosa, with the microscopic structure which approached that of the normal premenstrual phase.

(2) That where the bleeding had progressed for longer periods of time, fibrous changes appeared in the uterine walls with more or less enlargement, and that the endometrium took on the glandular appearance described by Cullen and Novak, i.e. an over growth of the basal type of gland with large dilated ducts lying side by side with small tubular ducts with increase of stromal cells (the Swiss cheese pattern).

(3) That with the very large boggy uterus found more particularly near the menopause the endometrium was most often very scanty, but what could be obtained showed the type described.

(4) That the ovaries which were available for study showed almost always some follicular degeneration but that corpus luteum was present in several.

(5) That no change which could be definitely called inflammatory was present in the uncomplicated case, except those changes in the cervix already noted as occurring in many women who never had any excessive bleeding.

I have then drawn certain conclusions from these studies for which I trust that you will bear with me, for we all realize that much work must be done before the last word as to the etiology and pathogenesis of this complicated condition is entirely clear.

(1) I believe that excessive uterine bleeding is primarily always the result of an ovarian endocrine disturbance initiated perhaps by any one of a number of factors that might apply to any gland of internal secretion.

(a) e. g. focal infections, cervicitis, etc., just as severe diseases of the other endocrine glands may be initiated by focal infections, thyroid disease from tonsils or teeth or pancreatic disease from gall bladder infections.

(b) Factors causing prolonged and continued pelvic congestion as excessive sexuality—frequent childbearing, repeated abortions.

(c) Circulatory failure due to heart disease.

(d) Developmental abnormalities.

(2) That the changes, found in the pelvic organs, are the reactions of those organs to excessive and continued congestion; results and not causes of the bleeding, except in the advanced stages, when permanent changes have occurred, and where the bleeding will continue even if the ovary is removed.

TREATMENT

With this conception of the etiology and pathogenesis of functional uterine hemorrhage the treatment becomes obvious.

(1) General

A thorough history and physical examination with the clearing up of possible foci of infection and an attempt to improve the bodily tone and resistance, rest in bed with foot elevated to relieve congestion in pelvis, *calcium* to replace the loss due to the continued bleeding, with exposure to the ultra violet light for its tonic and blood building properties.

(2) Specific Organotherapy

Organotherapy would seem to be the rational treatment and in some of the early cases different forms of ovarian extracts, thyroid, pituitary and combinations have proved successful in a limited number of cases, but have not as yet lived up to what should theoretically be expected of them.

(3) Surgical Treatment

Every case of uterine hemorrhage should be subjected to thorough dilatation and curettage to rule out malignant conditions and to allow of thorough pelvic examination for uterine or adnexal disease.

Curettage in itself seems to benefit the early case by destroying the hyperplastic endometrium and so controlling the bleeding, perhaps tiding the patient over until a proper readjustment of the endocrine takes place or the general sympathetic tone is restored, but in the case where the condition has gained momentum the bleeding usually rapidly recurs.

Hysterectomy was, up until a few years ago, the last resort, and extirpation of the uterus for this condition was not an uncommon termination of the condition, with of course satisfactory results.

(4) Radiation

With the advent of radium, a method of treatment has been found which has given most brilliant results. In no other field of therapy has radium proven to be of such definite value, and we may say that where radium in proper dosage fails to stop bleeding in this condition, that almost invariably malignancy of the body is present. Just how the radium acts is of course a matter of conjecture. I feel that its action is entirely local in the endometrium, resulting in atrophy or destruction of that organ and perhaps thus indirectly on the ovary. That there is any direct action on the ovary itself when the usual 1000 to 1200 mgh. dose is used seems improbable in view of the experiments of Schmitz. Of course in the puberty and adolescence cases and in the woman under 35 years of age great caution must be used and only the minimum dose necessary employed, but it seems to me preferable to use radium, than to do a hysterectomy on a young woman.

As you will agree, much work needs yet to be done before this important condition is clearly understood. I believe that the rational treatment of the future will be along proper hygienic lines with organ therapy. At present and until the intricate problem of the endocrines is better solved, radium can be relied on to give excellent results.

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EDITORIALS

MUM IS NOT THE WORD

Silence for the doctor has ever been golden and a close mouth, the mark of a clever man—up to the present time only. Yet now, with so much changing in the field of medical practice, even this sheet anchor of proper conduct for the physician has become loosened. No longer can a man in the phrase of a local colleague constantly “say nothing but look darn mysterious” and get away with it. In the matter of his patient’s private

affairs silence to others is and ever will be his watchword. But when it comes to answering of the patient’s many and reasonable questions as to the nature of his own complaints such a policy will no longer be tolerated. Public instruction in health matters has gone too far to allow it and the inference such an attitude advances. “I know, but you couldn’t understand” is what we may call too “thin.” As a cloak for ignorance, which it has always been, the policy of silence or evasion has become so threadbare and moth-eaten that the naked facts that it tries to cover is all too plain to the intelligent inquirer. No longer can we

glance at the tongue, look wise, write a prescription and go. We must explain and instruct. In point of fact the success of the treatment of many of the commoner ailments—as for example, tuberculosis and diabetes—depends more upon our ability as teachers of our patients than on anything else that we may do. To some of our older colleagues, reared in the days of mysteriousness and secrecy of which the present so-called Latin prescription writing is a vestige, the frank discussion and explanation seems new and strange—but like so much else it must be mastered if one is to do his duty. As we have less ignorance to hide we can discard the worn out cloak of secrecy and coming out into the open can frankly show our patients what knowledge has been won and what still awaits conquest.

INSTRUCTION IN ANESTHESIA

From the patient's standpoint, the anesthetic is the most important factor of a surgical operation. The physician who has considered anesthesia with the keen interest aroused by an operation impending on himself or some member of his family, knows how well founded is the patient's interest in the safety and comfort of undergoing anesthesia. Yet the medical profession as a whole is taking little interest in the subject. Few papers relating to anesthesia are read before surgical societies or printed in surgical journals. Competent instruction in anesthesia is not afforded by medical schools. An increasing number of hospitals are entrusting the administration of anesthetics entirely to unsupervised technicians. It follows that a graduate of a Grade A medical school and hospital may never have had a word of instruction about anesthesia nor have given a single anesthetic. It is true also that medical students are not anxious to become anesthetists, surgery being above all else their goal.

In defense, it is said that nurse technicians administer routine anesthesia better than does the average hospital interne and should be entrusted with this work for the benefit of the patients. If this defense be allowed, it must also be agreed that the nurse technician will administer routine anesthesia better than the medical graduate who has had no anesthetic training in school or hospital

and that technicians rather than medical graduates should be chosen by surgeons for anesthesia in their private practice.

But of all the factors which go to make up successful surgery, anesthesia is of first importance. Some member of the surgical team must be conversant with the advantages and limitations, the indications, and the immediate and after effects of the various forms of general and regional anesthesia. If a medical graduate with special experience in anesthesia is not available, the surgeon himself must have a knowledge of anesthesia, which the present regime has offered him no opportunity to acquire. A few hospitals, whose authorities have realized the importance of providing training in anesthesia for internes, bring our only hope for maintaining as satisfactory a surgical anesthesia as there is at present or for future improvement. At the Rhode Island Hospital, every interne is required to administer general anesthesia for several hundred operations. Visiting anesthetists, who are staff members of the hospital, give practical instruction in anesthesia in the operating rooms and a course of lectures, illustrated with many lantern slides, on the theory of general and regional anesthesia. This instruction is given in January, April, July and October, the months when internes begin their work in administering anesthetics in the operating rooms.

Each interne must learn the rudiments of surgical anesthesia and has an opportunity to master the entire subject and to become a skilled anesthetist if he develops an interest in the work. This plan of instruction has attracted attention in other centers. It offers a hope for future advancement in anesthesia.

WHAT PRICE CULTURE ?

Is the physician losing ground culturally? In the not distant past the clergyman, physician, and lawyer represented the intellectual aristocracy of the community. However it may be with the other professions, it is only too apparent that such is no longer the case with our own. Undoubtedly this is in part due to the rise in the general level of education. The tremendous extension of the boundaries of medical knowledge is also a factor to be considered in extenuation. It is not now possible

for one man to master the whole of medical science. Even to keep reasonably in touch with the advances in one specialty takes so much time and energy that there is little surplus left for purely cultural development. As a result it is rare to find a physician who can converse well on any subject outside his immediate professional interest.

This means a loss both to the physician and the community. The man who has no interest outside his trade or profession is poor indeed. He misses that inward satisfaction which comes from the full use of all his faculties. As a practical point, he will be a better physician for a broader background.

Most of us wish and expect to die in harness, but if it be willed otherwise, then the latter years will be a burden indeed, if we have no resources within ourselves and no interests outside of medicine.

AN UNUSUAL CASE OF TUBERCULOUS MENINGITIS*

BY ROY W. BENTON, M.D.

PROVIDENCE, R. I.

Tuberculous meningitis often presents a fairly definite clinical picture, and diagnosis in a hospital should not be unduly difficult. This case is reported because it has several unusual features.

The history was misleading in suggesting the possibility of a head injury as the cause. Three convulsions occurred ten to two days before entrance to the hospital, but on admission no reflex changes were apparent. Choked discs developed under observation without the accompaniment of vomiting or convulsions. The von Pirquet and intradermal tests were both negative over a week before death. The protocol follows.

D—L—a white girl about 8 years of age was apparently well until two weeks before entry to the Providence City Hospital when she was struck on the left side of the head by a stone. Her mother said the girl was not knocked down. A swelling appeared at the site of injury. About four days later, the child suddenly vomited and after 9 hours was seized with a convulsion involving the left side of the face and body. Twitching

of the left side and frothing at the mouth were reported. Duration two hours. On recovery the child seemed normal. Three days later, that is seven days before entrance, a second convulsion occurred lasting fifteen minutes. The left side of the body was involved again. No frothing at the mouth. After the attack, the girl was not drowsy but complained of pain in the back preventing sleep. Two days before entrance, a third convulsion in which the child fell to the floor and was unconscious for about fifteen minutes. No sphincter disturbances reported. Afterward she complained of headache for several hours.

This story of convulsions occurring on the left side suggested the possibility of some brain injury from the blow on the head. The interval—about four days—was, to be sure, rather long, but DaCosta, for instance, says that after the rupture of a small cerebral vessel, the lucid interval may be hours or days and there may be no sign of bruise on the scalp.

At admission to the City Hospital, physical examination showed a fairly well developed and nourished girl about eight years of age lying quietly in bed. The only complaint was stomachache. She seemed somewhat listless. Temperature 99.6°, pulse 55, respirations 26. The only positive findings were: impacted cerumen in both auditory canals, slightly injected fauces without exudate, sinus arrhythmia with a faint apical systolic cardiac murmur, reddened vulva with a suspicious discharge. The reflexes were normal. Nothing found to show a cause for convulsions.

The second day, the patient slept most of the time but was easily roused and rational. Temperature varied from 99° to 101°. Pulse was constantly slow—58 to 66.

Within 48 hours after entrance the fundi were examined and some haziness of the disc margins noted. Physiological cupping was not seen but there was no elevation of the disc. The veins were full and the arteries more tortuous than normal. Lumbar puncture was done and yielded a clear fluid after the first few drops which were bloody. The pressure was apparently decreased. Spinal fluid sugar was 18.7 milligrams per 100 cubic centimeters. A cell count was not done because of the blood.

The fourth day, the child was drowsy, irritable when aroused but perfectly rational. Definite ab-

*Read before the Providence Medical Association April 5th, 1926.

normal neurological findings were reported. The neck was stiff, and Kernig, positive on both sides. Pulse remained below 70 and temperature not over 100.5°.

The seventh day, the drowsiness was marked and the patient mumbled incoherently at times. Nystagmus was noted on the left and the Babinski and Kernig were both positive on the left side.

The eighth day the von Pirquet test, then 72 hours old, was negative, and an intradermal tuberculin test was done. The patient's drowsiness, semi-comatose condition was the chief characteristic and the suspicion of tuberculous meningitis became stronger. Neurologically, the left lower extremity was flaccid, and knee and ankle jerks were absent. Babinski's sign was suggestive on the left; positive on the right. Abnormal and arm reflexes were not obtained on either side. The Brudzinski test was positive. Tache cérébrale was marked. A transient internal strabismus of the left eye was noticed.

The ophthalmoscope now showed the optic discs to be very hazy in outline, vessels embedded and the cupping gone. An elevation of about 2 diopters was present. The retina was essentially normal; no tubercles were seen. Lumbar puncture yielded 20 c. c. of clear fluid under markedly increased pressure. Globulin positive. Sugar 13.8 mg. per 100 c. c. Cell count was 220 chiefly lymphocytes. No organisms seen.

The tenth day, the neurological consultant found choking of both discs more marked on the right, left internal strabismus, bilateral Babinski and Kernig, left knee jerk absent; right active. The spinal fluid pressure was 34 mm. Hg. Cell count 200, mostly lymphocytes. Spinal fluid sugar 35 mg. per 100 c.c. The intradermal test was then negative after 48 hours.

The general condition of the patient remained about the same. She was semi-comatose and had to be fed with a spoon supplemented by rectal fluids. The temperature reached 103° on the ninth day, then dropped only to rise on the fourteenth day. The pulse averaged 100 between the eighth and the fourteenth day. The diagnosis was definitely settled for the first time on the twelfth day when tubercle bacilli were found in the spinal fluid.

About the fifteenth day, signs of broncho-pneumonia appeared on the right and on the left sides

accompanied by a rise in temperature to 103° and pulse of 140. The patient remained unconscious until death on the sixteenth day.

At autopsy, the brain weighed 1081 grams. The cortical vessels were injected. The base was covered with a white film which extended up the left fissure. Direct smears from this film showed tubercle bacilli, mostly intracellular. The lungs showed a small area of broncho-pneumonia on the right at the base of the upper lobe and on the left a small area of firm consistency in the upper lobe. Microscopically there was no evidence of tuberculosis except on the brain and meninges. The guinea pig inoculated with spinal fluid from the second tap died in five weeks from tuberculosis.

W. L. Kinnear reporting on 100 cases of tuberculous meningitis in children (*Lancet*: Jan. 3, 1925) calls attention to the following features often present before or on admission to the hospital:

Paralysis, twitching or spasticity confined to one limb or side, presence of Babinski or Kernig, abdominal reflexes or knee jerks, on one side only, chart showing an irregular moderately raised temperature and a varying pulse rate, constipation in spite of cathartics.

He found vomiting, constipation or headache (children over 2 years of age) in over three quarters of the cases on entrance, and stiff neck and positive Kernig in over 50%. Convulsions were reported in 29%. Only ten percent of his cases were between the ages of 5 and 10.

This case is unusual and interesting because of:

1. The history of trauma two weeks before entrance.
2. The story of three definite left sided convulsions with normal condition following.
3. The absence of abnormal reflexes on admission with such a history.
4. The constancy of the neurological findings after entrance—diminished reflexes on the left with Babinski and Kernig positive.
5. The development of choked discs in a few days without occurrence of convulsions or vomiting.
6. The negative von Pirquet and intradermal tests before the patient became moribund.

NOTE

FROM OBITUARY RECORD OF YALE GRADUATES

*(Through the courtesy of Dr. C. H. Leonard)*FRANKLIN MAYNARD EATON
OF PROVIDENCE

Elected to Fellowship Rhode Island Medical Society June 9, 1887; removed from the state in 1896.

Born February 23, 1860, in St. Stephen, New Brunswick. Died November 22, 1925, in Calais, Maine.

Father, Henry Franklin Eaton, son of Jonas and Mary (Corey) Eaton; ancestors came from England to Watertown, Mass., in 1636.

Mother, Anna Louisa (Boardman) Eaton, daughter of William and Esther Wigglesworth (Tappan) Boardman; ancestors came from Yorkshire, England, to Newburyport, Mass., in 1637.

Phillips-Andover Academy, 1878. A. B., Yale, 1882.

Member Class Crew; captain Freshman Football Team; Member University Football Team four years (captain senior year) * * * * *

M. D., Harvard 1885; house officer at Worcester (Mass.) City Hospital April-November, 1885; spent next year abroad continuing medical studies in Vienna for several months; after his return to this country practiced in Providence, R. I., for ten years; surgical externe Rhode Island Hospital April-December, 1887; surgeon to Out-Patient Department 1889-1896; physician to Providence Dispensary 1887-1889; Home for Aged Women 1890-1896, and Society for the Prevention of Cruelty to Children 1889-1896; member of examining board, Rhode Island Medical Society, 1890-1895; president Delta Kappa Epsilon Alumni Association of Rhode Island 1888-1890; had lived in Calais since 1896. * * * Member of Providence Medical Society, and Congregational Church, Calais. * * *

Death due to heart failure; had been an invalid over thirty years. Buried in Eaton family lot, St. Stephen, New Brunswick.

SOCIETIES

PAWTUCKET, MEDICAL ASSOCIATION

The regular monthly meeting of the Pawtucket Medical Association was held at the "Jack O'Lanter" 33 Summer St., Pawtucket, October 21st, 1926, at 8:45 P. M.

The Association voted to support the plan for Medical Relief in disaster as arranged by the American Medical Association.

The death of Dr. John R. Venick was announced and a committee consisting of Drs.

George Howe, Earl Kelly and Frank Lutz was appointed to draw up suitable resolutions on his death.

Dr. Roland Hammond of Providence was speaker of the evening and gave a most interesting talk, "Fractures." Collation followed.

LESTER J. GILROY, M.D.
Secretary

HOSPITALS

THE MEMORIAL HOSPITAL
PAWTUCKET, R. I.

The following is a report of the Memorial Hospital Staff Meeting held October 7, 1926:

"Meeting called to order by President Wheaton at 9:15 P. M. Attendance record recorded in book.

Report of Secretary was read and approved.

Surgical report read by Dr. Jones.

Deaths

Dr. Hammond explained death of Osteomyelitis due to Septicaemia. Dr. Jones explained case of Intestinal Obstruction. Ruptured Gall Bladder, patient died of Surgical Shock. Dr. Wheaton explained one death due to Nephritis and Arterio Sclerosis.

No reports of special note from Out Patient Department.

Bill presented for mailing matter was turned over to the Treasurer for payment.

Report of Resolution Committee presented by Dr. Hammond and accepted.

A letter from Mrs. Charles O. Read, acknowledging receipt of resolution, was read and placed on file.

Dr. F. V. Hussey read a very interesting paper on "Breast Cancer." Paper brought out the modes of metastases in these cases. He quoted some French authorities on autopsy findings.

Possibilities of embolus but found that blood itself is very resistant against cancer cells and that they become thrombotic and are finally killed off. Deep fascia lymphatic plexi are responsible for cancer dissemination. Body divided into four lymphatic areas. These plexi drain into glands depending upon which area involved.

In addition there are deeper vessels which coalesce with deep plexi and also aid in dissemination. In development of cancer the medium lymphatic vessels are first involved. The larger lymphatic vessels sweep cancer cells along to forming embolus and are destroyed. This formation of lymphatics occurs early.

In this paper Dr. Hussey brought out the reason why we get some queer form of metastases.

Paper discussed by Drs. A. T. Jones, E. H. Wing, J. F. Kenney and I. Gerber.

Dr. Hussey closed discussion by explaining difference between lymphatic and circulatory dissemination.

Meeting adjourned at 10:30 P. M."

JOHN F. KENNEY, M.D.

Secretary, Memorial Hospital Staff

ANNOUNCEMENT

It is announced that beginning with the January 1927, issue *The Radiological Review* will be published monthly instead of bi-monthly and it will increase its number of pages from 32 to 64.

RADIOLOGY REVIEW PUBLISHING CO.

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Business Manager

BOOK REVIEWS

AN INTRODUCTION TO OBJECTIVE PSYCHOPATHOLOGY

By G. V. Hamilton, M.D.

Publ. C. V. Mosby Co., 1925

This book attempts with much initiative and originality to put psychopathology on a foundation of fact rather than upon that of a Freudian phantasy. Besides being valuable and idea stimulating, it well fulfills its chief aim in isolating and demonstrating a few important types of situations to which the nervous patient often responds abnormally. Part I, which deals with case histories mostly sexual and with a brief survey of their

findings, can be profitably avoided. Part II discusses the principles of objective psychopathology as deduced from the preceding histories and from animal experimentation. It also gives concrete advice in dealing with baffling disadvantage, and types and tabulates exceptionally well, reactions to it. The advantages of adjustive rational reactions and the dangers of persistent, non-adjustive, infractional, affective reactions are clearly described and much stressed.

During disadvantage with an emergency reactive value, the author conceives the autonomic nervous system as causing a special distribution of energy which results in emotion and interference with vegetative functions. If a situation of a feeble emergency reactive value recurs frequently, the responses of the autonomic nervous system are apt to be subacute, non-adjustive, and much prolonged. Reactions determined by a rational elaboration of experience do not involve autonomic functioning very importantly and so do not result in nervousness. This original and inspiring concept I consider the most important contribution which Hamilton makes to psychopathology.

OLD AND NEW VIEWPOINTS IN PSYCHOLOGY

By Knight Dunlap

Publ. C. V. Mosby Co., 1925

This book consists of five well written, readable essays on subjects of current interest in psychology. The essay on "Mental Measurements" is exceptionally good. In it the author stresses the fact that an adult with a grade of 12 on the Binet-Simon scale has not actually the mental characteristics of a child of 12 years, since the Binet-Simon intelligence tests, developed and standardized for pre-adult groups, do not measure the diverse lines of mental acquisition in adults.

Under "Present Day Schools of Psychology" the fact that psycho-analysis is based on "idea psychology," the ideas being not merely mental furniture but entities which exert force, is clearly brought out, as is also the development of the unconscious mind from these idea entities which are assumed to exist and exert force even when they are not observed by introspection.

The definition of instinct psychologically as the hereditary basis of predisposed reactions to certain

stimulations is in keeping with the modern trend in psychology. Following this conception, we agree with the author in considering all action as based on instincts and modified by intelligence; intelligence, of course, meaning the modification of the instincts through experience.

To the specialist in nervous and mental diseases, the criticism of psycho-analysis is valuable; to the average physician, the evaluation of the Binet-Simon tests is most instructive. For light, easy reading on a hot summer's day the book can be highly recommended.

SYMPTOMS OF VISCERAL DISEASE

Pottenger. Third Edition.

C. V. Mosby Co., Publishers.

The present is the third edition of this work, the first edition of which appeared in 1919. The nature of the work is not so well shown by the title as by the sub-title, which is: "A Study of the Vegetative Nervous System in its Relationship to Clinical Medicine." Part I is a résumé of our knowledge up to the present of the anatomy and physiology of the vegetative nervous system and touches briefly on endocrinology in its relationship to the former. The present edition contains as an addition to the previous edition, a chapter on "The Relation of the Ionic Content and Physical State of the Cell to Activity and Nerve Stimulation." Parts II and III discuss the manifold relationship of activity of the vegetative nervous system to symptoms of disease largely through reflexes which the author classifies as (1) visceromotor, (2) viscerosensory, and (3) viscerotrophic. This clinical treatise is based on the observations of the author and other well-known workers in this branch of medicine. For the internist, the surgeon, and the neurologist, a knowledge of the facts presented adds to the interest of their work and makes for a better understanding of the processes concerned in both health and disease in general. The book is well worth reading and having on hand for reference, and as a specimen of the book-maker's art, is to be commended.

MISCELLANEOUS

PREPARATION OF POTENT VASODILATIN-FREE PANCREATIC SECRETIN

An easy method of preparing a highly active pancreatic secretin solution ("new secretin") has been developed by M. M. Weaver, A. B. Luckhardt and F. C. Koch, Chicago, (*Journal A. M. A.*, Aug. 28, 1926). Under proper conditions of preparation, such a solution may contain only a minute amount of vasodilatin. The pancreatic secretin from this new secretin solution can be precipitated (with extraneous material) by means of sodium chloride, the vasodilatin fraction remaining essentially in the filtrate. Resolution in water and reprecipitation with sodium chloride lead to a further purification. Under certain conditions the active hormone can be washed from the precipitate, with the result that the hormone is free from vasodilatin. "Old secretin," prepared by the method of Bayliss and Starling, is not so susceptible to separation of the vasodilatin from the secretin by sodium chloride. The preparations of "new secretin" which yield the smallest amount of vasodilatin are those which are made in vivo. Those made in mortuo are best prepared immediately on death of the animal. A second method of selective adsorption to acidified permutit is uncertain and incomparably inferior in our hands with the precipitation by means of sodium chloride. "New secretin" preparations made in vivo or in mortuo remain active for months (even without a preservative), particularly if they are boiled (to destroy most bacteria and enzymes). The sodium chloride precipitate offers an excellent starting point for the ultimate isolation of the active principle in pure form.

HIGH JEJUNOSTOMY IN INTESTINAL OBSTRUCTION

In a series of experiments on dogs, Thomas G. Orr and Russell L. Haden, Kansas City, Kan. (*Journal A. M. A.*, Aug. 28, 1926), have studied the effect of jejunostomy on the chemical changes of the blood and the length of life following high obstruction of the jejunum. Also combined jejunostomy and treatment with sodium

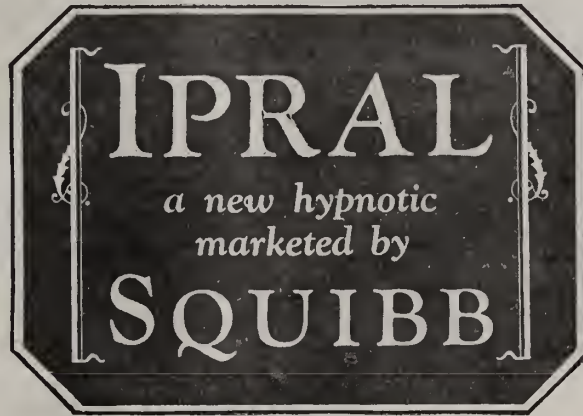
chloride was studied. Obstructions were produced under ether anesthesia by sectioning the intestine from 10 to 12 inches below the ligament of Treitz and inverting the cut ends with purse string sutures. All secondary jejunostomies were done under local anesthesia; 0.5 per cent procaine was used. The technic of jejunostomy was a modified Witzel operation with an omental covering sutured over the reanastomosis. A small rubber tube was used, and in every instance the drainage through the tube was prompt and continuous. Water was permitted by mouth ad libitum. Blood for analysis was withdrawn daily from the jugular vein until the death of the animal. The non-protein nitrogen, urea nitrogen, chlorides and carbon dioxide combining power were studied. Any animal showing a complication at necropsy was rejected. Five animals with simple obstruction of the jejunum lived from five to nineteen days. The chemical changes of the blood were similar to those noted in duodenal obstruction, but developed less rapidly. The carbon dioxide combining power showed an increase, but not the marked rise observed in obstruction of the duodenum and pylorus. In a second series of five animals in which obstruction of the jejunum and jejunostomy were done simultaneously, the length of life varied from three to five days. The chemical changes of the blood developed rapidly, and were typical of those found in high intestinal obstruction. Animals subjected to obstruction of the jejunum and jejunostomy simultaneously and treated with sodium chloride solution from the beginning of the experiment lived from three to twelve days. They did not show the chemical changes in the blood characteristic of jejunal obstruction. The administration of sodium chloride solution apparently prevented such changes. In five dogs with obstruction of the jejunum, jejunostomy was done after the development of a toxemia. The duration of life in the group varied from four to thirteen days. The animals developed the characteristic blood changes of simple jejunal obstruction. In the next series of five dogs, jejunostomy was done after the onset of the toxemia of jejunal obstruction. Sodium chloride was given after jejunostomy in sufficient quantity to keep the blood chlorides within normal limits. These animals did not develop the chemical changes of the blood characteristic of obstruction of the jejunum, and lived from thirteen to eighteen days. It was found in these experiments that animals having obstruction of the jejunum and jejunostomy to-

gether lived a shorter time than those having obstruction alone. This suggested the study of the effect of simple jejunostomy with the interesting observation that six dogs lived only from two to five days following the operation. All of these dogs showed a decrease in the blood chlorides and a rapid rise in urea and nonprotein nitrogen. With the well known danger of duodenal fistula and the rapid death of animals following experimental jejunostomy in mind, Orr and Haden believe that the clinical value of jejunal drainage for obstruction of the small intestine is yet to be proved.

FLUOROSCOPIC VISUALIZATION OF TUBAL PERISTALSIS IN WOMEN

Lipiodol was used by I. C. Rubin and A. J. Bendick, New York (*Journal A. M. A.*, Aug. 28, 1926), as the medium for study of women with tubal obstruction as previously demonstrated by gas insufflation. Not only were roentgenograms taken of the tubes, but direct fluoroscopic observation made it possible to watch the fluid in the uterus and tubes. It was thus possible to note also whether peristalsis was present. Twenty-six patients were observed. With the exception of two cases, 5 cc. of the fluid was sufficient to fill the uterine cavity and the tubes to full length. In two cases the uterine cavity held more than 5 cc., and the quantity used was double. The results of the examination in the first two of the twenty-six cases were not clear, but they were useful in indicating points in technic to which special attention had to be paid in subsequent cases. The present report is based on data obtained in the remaining twenty-four cases. Of these, seven were blocked close to the uterine wall. In seventeen cases, one or both tubes were visualized. Fifteen of these showed peristalsis which could actually be watched under the fluoroscope and evidence obtained on the films by the distinct beading which Dyroff described as "pearls." The lipiodol has been either removed by aspiration, or the little that remained in the uterine cavity was found to escape almost immediately after the cannula was removed. In the tubes the lipiodol may remain a fairly long time if the obstruction at any point is complete or only partial. This is especially true when cystic dilatation of the tubes is present. In a few cases, the lipiodol was seen lodged in the tubes several months after the injection, but no symptoms referable to its presence were noted.

ANNOUNCING...



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